Age of Sustainable Development (Sachs) Reading and Study Questions

Instructions: These reading questions will be the basis for most quiz questions. You will do best on the quizzes if you print these out, and then as you are doing your reading, to write down complete answers for each question. I will ask very specific questions that will assess how well you have taken notes.

Please note that the reading questions below contain much prose that is lifted directly from Sachs. I have done this intentionally so that it will be easier for students to locate such sections. Therefore, I will not necessarily identify which questions contain exact quotes, and which ones do not.

When there are blanks for you to fill in, please fill them in exactly as they appear in the reading, as I may later have questions that request these in their exact original form.

While most quiz questions will be based on the reading questions, there will be some questions that are not. In addition, the context for the answers to some of the reading questions may surround their actual answer – thus for a full understanding comprehensive reading is required. Thus if you skip over parts that are not directly addressed in the reading questions, you quiz scores will suffer.

Chapter 1 Introduction to Sustainable Development

1. By what multiple (e.g. 2x, 10x, etc.) are there more people now than when the Industrial Revolution started around 1750?
2. From the third paragraph, there are four groups of people in the world. Summarize each.
3. From a later paragraph, at least how many people are in the first of your three groups?
4. Take the total output of the world economy, and divide by the population figure given on page 1 and then later on page 2. What is the resultant average output per person from this calculation?
5. Explain why is it difficult to compare GWP today with GWP of 250 years ago?
6. Sachs writes that the gigantic world economy is creating a gigantic environmental crisis. There are four *fronts* within which Sachs identifies environmental threats that are unprecedented in the 10,000 year span of human civilization. List each.
7. There are three complex, interacting systems that the study of sustainable development tries to make sense of. List them.
8. What are SDGs?
9. Of the core functions listed for government, identify the one that you think is 1) most controversial, and 2) least controversial. (this refers to political philosophy about the appropriate role of govt.
10. “The world’s \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are often the most powerful actors.”
11. Write out the Brundtland Commission’s definition of sustainable development.
12. What concept from the Brundtland Commission was widely adopted, including at the Rio Earth Summit in 1992?
13. Six questions back, the three complex interacting systems of sustainable development were requested. Now, on page 6 near the bottom is a three way normative (thus ethical) framework, which includes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ development, social \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and environmental \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
14. Complexity scientists speak of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ properties of a complex system, meaning those characteristics that emerge from the interactions of the components to produce something that is “\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_.”
15. Be familiar the example given in the paragraph about unexpected characteristics of complex systems… that of the failure of Lehman Brothers investment bank. Also be familiar with the concept of non-linearity.
16. Sustainable development involves four complex interacting systems. They are (expressed in *italicized words*):

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Technology systems such as the maglev train as described in China can help achieve sustainable development, particularly environmentally. Explain what change will be needed in China for that this to be achieved.

Sachs writes a one summary sentence for each of the three aspects of technology pertinent to the study of sustainable development.

Sachs makes a partial list (6 items) of important technological advances that to some degree owe their development to government support. List them.

He then goes on to list future areas where he thinks that government policy will help drive innovations, including the public financing of \_\_\_\_\_\_\_\_\_\_\_\_\_\_, direct research in \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, regulations, and more.

In the section on Sustainable Development as a Normative Approach, he critiques the view that a good society is a rich society, one in which higher incomes area the ultimate purpose of economic and political life. Summarize the specifics.

There are five kinds of general concerns about the distribution of wellbeing. List each.

Sachs then gives a two word term that describes the degree to which society has optimized all of these five distributional issues: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The good society that Sachs idealizes here is also characterized as being a good steward of the \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The conventional view about income and inequality is that if a society aims for more equality, it will be less \_\_\_\_\_\_\_\_\_\_\_\_\_\_. (four letter word) Sachs gives an example that contradicts this view that income and equality are substitutes. He gives an example about a tax on the rich, where the money from the tax is not used for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by the poor but rather for the \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_ of the poor.

In such an example, Sachs argues that sustainable development offers synergies rather than \_\_\_\_\_\_\_\_\_\_ - \_\_\_\_\_\_\_ in the pursuit of \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_, and sustainability.

Average GDP per capita is imperfectly correlated with other measures of national well-being, including: (list 4)

Describe one fundamental basic problem with using GDP per capita to compare income across countries.

Due to the problem above, what measure is often used instead of GDP per capita? What does it account for, that GDP per capita does not account for?

What kinds of activities do the above two measures of national income not account for?

Give Sach’s list of three “terrible things” that are also not accounted for.

Let’s say that a counties’ GDP doubles over a couple of decades. What other statistic should be used to assess to what degree personal income growth has really risen during this time period?

So, given all of this, write out the preferred statistic for comparing economic growth rates of different countries. (page 16, if you’re lost)

OK, so let’s say that two countries have enjoyed the same GDP growth rates over time. Let’s say one is a major oil exporter to the world, the other has an economy that is almost entirely dedicated to internal production. Let’s say that international oil prices have declined in the years we are comparing. Adjusting for this change, which country actually had higher productivity growth over this time period? Explain.

If we are assessing the actual production of goods and service over time, what additional data are helpful, aside from the topics covered in the previous three questions?

Using the rule of 70, how many years would it take for an economy growing at 3.5% per year to double?

Following the work of economic historian Angus Maddison, what is the average per capita growth rate of the global economy since from 1820 to 2010? From 1970 to 2010?

Economic historians call the period from 1750 onward the “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”.

The rise in GWP was first associated with the rise of industry, such as “ \_\_\_\_\_ \_\_\_\_\_\_\_\_, steel making, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_ production.”

The period of growth from 1750 to 1850 is often referred to in what two word term?

After around 1950 in the high income countries, the rise in GWP is associated with what activity type, that starts with the letter s?

All said then, the GWP per capita since around 1750 has risen by a factor of around \_\_\_\_\_\_\_ (list a two digit number), while in some countries it has risen by a factor closer to \_\_\_\_\_\_\_.

The shape of the graph of GWP per capita is very similar to the shape in what other global statistic?

The rise in agriculture is described by the term \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Era.

In recent decades, the global population has been adding a billion roughly every how many years?

What is one clear reason for the population increases over the past couple of centuries?

So then the age of economic growth has two components, rising \_\_\_\_\_\_\_\_\_ per \_\_\_\_\_\_\_\_\_\_\_\_, and rapid \_\_\_\_\_\_\_\_\_\_\_\_\_ growth. What is one downside of this (he has also used the word “bad” for this a few times already)?

The Chinese economy grew at about \_\_\_\_% a year from 1978, while in per capita terms, about \_\_\_ %?

Where did the 200+ million migrants that work in China’s factories come from?

Describe three downsides of this economic growth, as summarized by Sachs.

In what two aspects, therefore, does Sachs write that China’s growth does not yet live up to the concepts of sustainable development?

List seven items that have improved the levels of global health, in addition to the all-important factor of improved diet, that was listed first. (I emphasize diet here as it is so important but often overlooked).

Infant mortality has dropped from \_\_\_\_ in 1950 to \_\_\_\_\_\_ at the time of writing.

Improvements in infant mortality are part of the equation that is used to calculate life expectancy at birth. Globally life expectancy in the 1950s was \_\_\_\_\_ years, while it is now around \_\_\_\_\_ years.

The increases in GDP per person are accompanied by several structural changes in society: 1) rural life to \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_, 2) peasant farming to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, 3) fewer tragic deaths to \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and greater \_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_ for most of us.

Despite all of this progress, Sachs writes that if globally we do not do a better job of combining economic growth with \_\_\_\_\_\_\_\_\_\_\_\_\_ inclusion and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the economic gains will likely be short-lived and followed by \_\_\_\_\_\_\_\_\_\_\_ instability and a rising frequency of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ catastrophies.

Be familiar with the stories of extreme rural and urban poverty given by Sachs.

List at least half a dozen indicators/attributes of extreme poverty given by the author.

The cost of a dose of medicine that can save the life of a child in Africa is unaffordable to many. What was the price listed?

In what areas, rural or urban, is there the most extreme poverty?

What other locational factor helps keep some countries poor, in South America and Asia?

What region of the world is the poorest, and what region the second poorest?

What region of the world has the highest infant mortality, and what region the second highest?

What are favelas, and in where are the found?

To what country here does the author refer to as having relative poverty?

What are CHWs, and what key function do they bring to communities? (page 34)

The “240-fold increase in world output in recent centuries causes the Earth’s climate, \_\_\_\_\_\_\_ cycle, nitrogen \_\_\_\_\_\_\_\_\_, and even its ocean \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.”

The example of Superstorm Sandy, which hit \_\_\_\_\_\_\_\_\_\_\_\_, is given as an example. “Even if scientists can’t determine whether the storm’s remarkable ferocity was due in part to human-induced climate change, they can determine that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (7 words)

How much higher was sea level on the Eastern seaboard compared with a century ago?

What is the meaning of the term Anthropocene?

Hydrometeorological disasters are implicated in deadly famines in \_\_\_\_\_\_\_\_\_\_\_\_\_, crop failures in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_, and a dramatic increase in forest fires in the \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_, and other parts of the world.

One of the main drivers of change is the massive use of \_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_, and natural \_\_\_\_\_\_.

Collectively, the above are referred to as \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_.

With regards to atmospheric carbon dioxide, we know that its levels are higher now than anytime in the past how many years? (on the graph). How much higher, in ppm, are these levels over the natural levels of variability?

When the carbon dioxide levels were last where they are now, how many years ago was it? What was the global temperature like then?

Why should we be concerned? “….all of our civilization, the location of \_\_\_\_ \_\_\_\_\_\_\_\_\_, the \_\_\_\_\_\_\_ we \_\_\_\_\_, and the technologies that run our industry – is based on a \_\_\_\_\_\_\_\_\_\_\_ pattern that will soon disappear from the planet.”

Continuing the quote…”The Earth will become much \_\_\_\_\_\_\_\_\_\_\_ than it has been during the \_\_\_\_\_\_\_\_\_ period of civilization.”

Sachs reviews some of the findings of the Rockstrom group report which points out that producing more carbon emissions is also accompanied by disruption of several of Earth’s natural systems, and later he discusses the importance of defining planetary boundaries “beyond which humanity should not venture.

List the four planetary boundaries he gives as examples:

Looking at the figure from the Rockstrom study, which two planetary boundaries have already been exceeded?

The first part of sustainable development is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (write in one word), the second part is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Which of the above two is predominantly a scientific effort? (interpret on your own)

Page 42: To attain global inclusive and sustainable development by combining the economic, social, and environmental objectives, what fourth objective must be achieved? Given that the US economy is over one fifth of global GDP, what should its role in this be, in your opinion? (we may have a forum over this)

Sachs writes that the essence of sustainable development in practice is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *and* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ -*based problem solving.*