

# Envi PYQs

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## Explain how renewable resources will play a role in future economics. (10,2020)

- Renewable resources: whose natural rate of replenishment is faster than rate of exploitation eg. Wind, solar, etc
- Why?
  - Rapid depletion of non-renewables
  - Associated negative externalities -- pollution, global warming
  - Increasing cost of extraction
- Future economics
  - Energy security crucial
  - Increasingly service dependent -> computing power, digitalisation -> more energy demand
  - Uplifting standards of living of poor sections -> increasing E demand
  - Orientation towards sustainability
- Role of renewables
  - Maintain intergenerational equity
  - R&D in renewables -- enable attainment of SDGs
  - New equipment required for exploitation, transport of renewables -- boost to mfg (eg under NISE - solar cells mfg in India)
  - Employment growth -> uplift from poverty, disguised unemployment

## 'Even green energy is not always green.' Do you agree? Illustrate your answer taking biofuels as an example. (15,2020)

- Green energy -- not a net emitter of carbon; doesn't harm environment; ~renewable energy
- Examples -- biofuel, solar energy, wind energy
- Biofuel = fuel produced through contemporary processes from biomass, rather than the slow geological processes leading to formation of fossil fuel
  - Forms: biodiesel, biogas, GobarDHAN initiative
- Biofuel as green energy
- Biofuel NOT completely green

Burning biomass, whether directly as wood or in the form of ethanol or biodiesel, emits carbon dioxide just like burning fossil fuels. In fact, burning biomass directly emits a bit more carbon dioxide than fossil fuels for the same amount of generated energy. But most calculations claiming that bioenergy reduces greenhouse gas emissions relative to burning fossil fuels do not include the carbon dioxide released when biomass is burned. They exclude it based on the assumption that this release of carbon dioxide is matched and implicitly offset by the carbon dioxide absorbed by the plants growing the biomass.

According to **world resource institute** biofuels and bioenergy take up finite land resources at the cost of food production and carbon storage and doesn't guarantee carbon emissions cuts. Also fertilizers are used in the production of biofuels crops. Excessive use of fertilizers affects environment. Thus net emission might not be zero.

Palm trees are one of the important resource for biofuels production. In Malaysia and Indonesia large tropical rain forest were cut to increase palm oil production. It affected

biodiversity in the region.

Also about biomass from animal excreta -- animals produce methane during digestion

### How does 'carbon trading' help in reducing environment degradation? (10, 2019/2015)

- Carbon trading - tradable emission permit; allows a ctry/ organisation to produce a certain amount of C emissions; which can be traded if the full allowance is not used
- A form of economic incentive for pollution reduction
  - ? • Other measures -- regulation & \_\_\_
- Why it makes economic sense
  - Upholds equimarginal principle
  - Polluter has to buy carbon credit - 'polluter pays' principle
- Role of carbon trading in reducing envi degradation
  - aka 'Cap & Trade' -- caps global emission of carbon -> properly following would help keep temp rise below 2 C
  - Easier to administer than carbon tax
  - Capping -> forces ctries to invest in green tech -> LR effect in reduction of envi degradation
  - Chance of revenue earning through sale of carbon credits if more carbon cuts than limits -> incentivises decreasing pollution as much as possible
- Limitations
  - Difficult to measure
  - Initial setting of caps arbitrary

### How does rural economic activity create environmental degradation in developing economies? (15, 2018)

- Rural economic activity = agriculture + animal husbandry + small industries + coal/ firewood for energy + mines
- Agri - nitrogen fertilisers+ groundwater exploitation + paddy floods
- Animal - methane rumination + waste
- Mines - dust + fossil fuel burning + deforestation
- Small industries - no attention to emissions
- General hh stuff
  - Firewood cooking
  - Improper sanitation/ sewerage

### What policies would you suggest to combat negative externalities? (20, 2018)

- Taxation
- Subsidies
- Regulation - eg BS VI std
- Pollution permits
- Changing consumer behaviour

### The trade-off between environment and development remains unresolved. Comment in the view of US exiting from Paris Climate Agreement. (15, 2017)

US withdrew from the Paris Climate Agreement by saying the deal puts an "unfair economic burden" on Americans. The agreement brought together 188 nations to combat climate change. There has been widespread international condemnation of the US move. It raised the question again environment or development?

The Paris accord, agreed in 2015, committed the US and other countries to keeping rising global temperatures below 2C above pre-industrial levels and attempting to limit them even more, to a 1.5C rise. It was an attempt for sustainable development. Through the Paris

accord world could have achieved development with the conservation of environment.

USA put development ahead of the environment. USA is largest economy. Its unwillingness to join Paris climate change may affect moral of other countries. Thus the trade off between environment and development could shift towards development.

However other countries including European Union are committed to the Paris climate agreement. Also local and state governments from USA are also willing to keep commitments of Paris climate agreement. Developing countries like India are also enthusiastic for the agreement. India along with France formed International Solar alliance to promote clean energy.

Thus USA exit from Paris climate agreement might lead to the unresolved trade off between development and environment. However remaining countries together could set it on right path.

**Illustrate the notion of perverse subsidies in the context of natural resource sector. (15, 2016)**

**"Pollution-income progression of agrarian communities (clean) to industrial economies (pollution intensive) to service economies (cleaner) would appear to be false if pollution increases again at the end due to higher levels of income and consumption of the people at large." Discuss. (15, 2016)**

- N shaped Kuznets curve

Kuznets environmental curve suggest that, with growth environmental degradation first rises and then reduces.

Causes for increase in environmental degradation

In the first part, industrial income rises and agricultural income falls. It increases environmental degradation by industries. Also in the initial stages income is low to adapt clean energy technologies. Thus there is dependence on polluting energy sources. Hence environmental degradation increases with income

Causes for decreased inequalities

Over the period service sector starts replacing manufacturing sector. Service sector is less polluting than industries. Also with increased income investment in clean technology increases. It helps to reduce environmental degradation.

N shaped Kuznet Curve

However studies found that higher economic growth in the US led to increased use of cars. This increased consumption again increases environmental degradation. With higher rates of economic growth, people have more discretionary income after paying for basic necessities. Thus they start spending on luxury goods. For example tourism may increase with growth. It leads to degradation of environment.

There is possibility of increasing pollution with growth. Thus pollution-income progression of agrarian communities (clean) to industrial economies (pollution intensive) to service economies (cleaner) would appear to be false if pollution increases again at the end due to higher levels of income and consumption of the people at large.

**What do you mean by 'green accounting'? Discuss how this concept can be incorporated in national income accounting. (10, 2015)**

**Discuss the role of renewable energy resources in order to maintain environmental sustainability with special reference to India. (20, 2015)**

Renewable energy (RE) sources can help in reduction of carbon emission and thus help in maintaining environmental sustainability.

Role of renewable energy resources in sustainable development

Renewable energy can help by contributing to sustainable development by reducing energy imports. India has committed to 144 GW renewable energy till 2022.

By installing the solar panels, the poor and remora area people can have access to electricity. India is doing.

Solar plants ensures electricity in rural area. It also helps to generate income for poor. For example India's PM-KUSUM scheme is aiming to increase farmer income through solar plants.

- Also sell to grid 'prosumers'

Adaption of renewable energy helps in climate change mitigation.

Development of renewable sources lead to creation of employment opportunities. It helps to reduce poverty which is one of the SDG.

Renewable energy resources improves health of women. For example transfer from wood based fuel to clean fuel for cooking reduces problems of respiratory diseases.

- Reduced indoor pollution -> better health of children, women & elderly

Sources of energy like fossil fuels are limited. There is a strong possibility that they will run out in the future. Renewable resources do not deplete over a lifetime and there is zero possibility that they will run out. It ensures sustainable energy for long time.

Renewable energy technologies are still new to the market. They are still not affordable to all. Governments throughout the world should actively promote renewable energy to ensure sustainable development.

**"Global warming will certainly increase the cry of the earth and the cry of the poor." In this context, examine the international efforts to reduce global warming. (20, 2015)**

After the 1980 world started looking at global warming seriously. Through the agreements and conferences countries are trying to deal with global warming.

Rio Earth Summit (1992)

It was first substantial step towards dealing with global climate change. It comprehensively discussed multiple global warming related issues. It led to signing of Kyoto protocol which ensured commitments from the developed world.

Kyoto protocol

The major achievement of the Kyoto Protocol is in bringing awareness to the need to reduce GHG emissions and save the environment. The Protocol invented economically justifiable mechanisms to tackle GHG emission. It has successfully mobilized more than US\$200 billion of private sector investment for mitigating climate change.

However it was not able to achieve reduction in global warming. Despite emission cutting commitments, emission of many countries increased.

## Various Climate Change Conferences

At every conferences there were commitments to keep global warming in limit. However nothing much happened in reality. Developed world on various forum promised to help developing world to mitigate climate change. But there was little transfer of fund.

## Paris Climate Change Agreement

Paris climate change agreement decided to keep a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. However just after signing the agreement USA withdrew. Also it is observed that most of the targets of agreement are not fulfilled by member countries.

Thus it can be said that global climate change efforts are just representative in nature. There are little actions on it to keep global warming under control.

**Our development strategy has been proposed in terms of 'faster', 'more inclusive' and 'sustainable' growth. Do the three components sit together well? Argue for your answer. (10, 2014)**

The theme of the 12th five year plan has been stated as "faster, more inclusive and sustainable growth". These three goals together are seen as conflicting but there is reconciliation between them.

Kuznets inverted U hypothesis analyzed effect of growth on distribution of income. According to Kuznet as income increases inequalities first increase and then decrease. It suggests that faster growth can lead to inclusive growth. Faster growth means more resources to distribute and thus an inclusive growth.

Similarly Kuznet environmental curve suggest that, with growth environmental degradation first rises and then reduces. Faster growth generates resources to adapt sustainable technologies. Thus faster growth can also lead to sustainable growth.

Ways to achieve sustainable, faster and inclusive growth

Poverty is called as biggest polluter. With the faster and inclusive growth poverty will be reduced. It will poor population to adapt new renewable sources instead of polluting energy sources.

Government of India adapted zero effect zero defect scheme for MSME. It insures faster, inclusive and sustainable development.

Doughnut's economic model suggest that by defining boundaries of development, inclusive, sustainable and faster growth can be achieved.

Thus it can be said that a faster, inclusive and sustainable development can sit together

**'Industrial development and environmental degradation are highly correlated.' If it is true what should be, in your opinion, the policy options for industrialisation process vis-à-vis pollution control? (20, 2012)**

Industrial degradation and industrialization are highly correlated. For the sustainable development there is need of industrialization as well as pollution control.

Policies for industrialization as well as pollution control

Industries adapting clean technologies should be given tax incentives and subsidies.  
 Large solar and wind energy parks should be established. It will help in reducing dependence on coal energy.  
 Focus should be shifted to small industries, Government of India has started zero effect zero defect scheme for industries.  
 Water effluent should be compulsorily processed. Every industrial zone should have compulsory waste water treatment plans.  
 Academic – Industry collaboration should be promoted for development of pollution controlling tools.  
 There should be compulsory plantation in industrial areas.  
 Circular economy should be promoted. It will reduce pollution effects.  
 These policy options can help in achieving target of industrialization as well as pollution control.

### **Why do energy elasticities tend to unity in industrially advanced countries? (20, 2011)**

Energy elasticity is the percentage change in energy consumption to achieve one per cent change in national GDP. It is unitary when change in energy consumption increases energy by equal proportion.

Energy elasticity of residential sector is more less inelastic. However increase in energy consumption in the industry, services, transportation can significantly increases output level. In industrial developed country these sector are dominated. Also due to industrial advancement these sectors have efficient energy transmission and consumption which reduces losses. Thus energy elasticities tend to unity in industrially advanced countries.

### **What are the negative externalities of high energy coefficients? (20, 2011)**

Energy coefficient is also called as energy elasticity. It is the percentage change in energy consumption to achieve one per cent change in national GDP. High energy coefficient means high energy consumption to raise GDP.

Negative externalities of high energy coefficient

High energy coefficient shows inefficiency in the economy. It increases logistic and production cost in the economy.

High energy coefficient means high energy production. It might generate negative environmental externalities in production of energy.

High energy consumption of conventional energy sources increases pollution. It increases negative externalities.

Thus high energy coefficient increases negative externalities in the economy.

### **What are the objectives of National Environment Policy, 2006? (20, 2011)**

To ensure the protection of environment national environment policy 2006 was enacted. Its objectives are as follow.

To protect and conserve critical ecological systems and resources

To ensure equitable access to environmental resources and quality for all sections of society, and in particular, to ensure that poor communities, which are most dependent on environmental resources for their livelihoods, are assured secure access to these resources

To ensure judicious use of environmental resources to meet the needs and aspirations of the present and future generations

To integrate environmental concerns into policies, plans, programmes, and projects for economic and social development.

To ensure efficient use of environmental resources in the sense of reduction in their use per

unit of economic output, to minimize adverse environmental impacts.

To apply the principles of good governance (transparency, rationality, accountability, reduction in time and costs, participation, and regulatory independence) to the management and regulation of use of environmental resources.

To ensure higher resource flows, comprising finance, technology, management skills, traditional knowledge, and social capital, for environmental conservation through mutually beneficial multi-stakeholder partnerships between local communities, public agencies, the academic and research community, investors, and multilateral and bilateral development partners.

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