Quiz 1 Answers

Question 1 (3 points)

Case A: The production of a plastic factory 'K Chemical' is located nearby a house village 'Dreamland'. If the production of the plastic factory reaches a certain level at Qm, it will release air pollutions to the level that destroy clean air around the Dreamland village. However, if the production of the plastic factory does not exceed Qm, it will create no significant impact for people living in the Dreamland village.

Case B: In Thailand, the CO_2 emissions from oil consumption in transport sector increased from 51 million tons of CO_2 in 2008 to about 63 million tons of CO_2 in 2018.

Please answer the following questions for both Case A and Case B above

i. Does an externality exist? If so, classify the externality type (e.g., positive vs. negative, costs vs. benefits) and explain how inefficiency problems could arise in this case.
ii. If an externality exists, could the Coase Theorem be applied to solve market inefficiencies in this case? Please explain your answer (Hint: is it possible to use property right rules and solve the problem?)
iii. If the Coase Theorem does not apply, what the government could do to solve the problem?

Case A:

i) Yes, negative externality from air pollution exist. The cost of air pollution caused by K is not internalized in the firm private cost. Inefficencies arise when K Chemical produce and create negative externality cost to Dream village

ii) Yes, According to Coase Theorem, if property rights are well designed & enforce without transaction cost, private negotiation between K chemical & Dream village can lead to efficient outcome (producing < Qm) regardless of who has the right

iii)
- Restrict production to Qm through regulation
- Zoning areas
- Impose tax on air pollutions

CASE B:

i) Yes, increases in emissions raise negative externality to society

ii) No, not possible to use private negotiations for many car owners in the country

iii) Impose a tax on pollutions

Question 2 (2 points)

Suppose an investor is considering a wind farm project to produce electricity. The wind farm will create noises that affect people living in a house village Dreamland.

i. How could you estimate the compensation amount for people living in the Dreamland to approve the wind-farm construction? (Hint: Choose WTP vs. WTA question, methods to estimate WTP and WTA).

ii. What should be considered in the cost-benefit analysis to decide if the wind farm project should be built or not?

i Estimate the compensation amount from the willingness to accept (WTA) the project that reduce people's well being (from noises) by using a contingent valuation method to directly ask people in Dreamland WTA questions.

ii
- Identify and estimate values of benefits & costs of the project.
  - ⇒ Benefit : Value of electricity production
  - ⇒ Costs : Construction costs of wind farm, compensation costs
- Using discount rates to calculate net present value of both benefits & costs
- Built if benefits > costs or NPV > 0

Net present value = PV of Benefits − PV of Costs