**NATURAL RESOURCES: NOTE-2**

**Market efficiency, externalities and types**

**B.A 6TH SEM (Major)**

**(Paper: M603)**

**Market efficiency**

Efficiency of the market is measured as output- input ratio. It should be greater

than one.

E = O/I

**Types of market efficiency**

**Allocative efficiency:**

This is a type of efficiency in which economy/producers produce only that type of goods and services which are more desirable in the society and also in high demand. According to the formula the point of allocative efficiency is a point where price is equal to Marginal cost (P=MC).

**Pareto efficiency** or **Pareto optimality**:

It is a concept in economics, named after Vilfredo Pareto, an Italian economist who used the term in his studies of economic efficiency and income distribution. Given an initial allocation of goods among a set of individuals, a change to a different allocation that makes at least one individual better off without making any other individual worse off is called a Pareto improvement.

**Productive efficiency** (also **technical efficiency**):

Occurs when the economy is utilizing all of its resources efficiently, producing most output from least input. The concept is illustrated on a production possibility frontier (PPF). In long-run equilibrium for perfectly competitive markets, the average (total) cost curve i.e. where MC = A(T)C. Productive efficiency requires that all firms operate using best-practice technological and managerial processes. By improving these processes, an economy or business can extend its production possibility frontier outward and increase efficiency further.

**Economic efficiency:(important)**

Economic efficiency occurs at the level of output at which the marginal social

benefits (MSB) equal the marginal social costs (MSC). MSB = MSC

**Market efficiency levels**

1. **Weak-form efficiency:** Prices of the securities instantly and fully reflect all information of the past prices. This means future price movements cannot be predicted by using past prices.
2. **Semi-strong efficiency:** Asset prices fully reflect all of the publicly available information. Therefore, only investors with additional inside information could have advantage on the market.
3. **Strong-form efficiency:** Asset prices fully reflect all of the public and inside information available. Therefore, no one can have advantage on the market in predicting prices since there is no data.

**Market failure:(important)**

Market failure is a concept within economic theory wherein the allocation of goods and services by a free market is not efficient. That is, there exists another conceivable outcome where a market participant may be made better-off without making someone else

**Market power, Monopoly, Monopsony, Oligopoly, and Oligopsony**

The inefficiency in the market lead to imperfect competition and causes market failure. Agents in a market can gain market power, allowing them to block other mutually beneficial gains from trades from occurring. This can lead to inefficiency due to imperfect competition, which can take many different forms, such as monopolies, cartels, or monopolistic competition, if the agent does not implement perfect price discrimination. In a monopoly, the market equilibrium will no longer be Pareto optimal. The monopoly will use its market power to restrict output below the quantity at which the marginal social benefit is equal to the marginal social cost of the last unit produced, so as to keep prices and profits high.

**Public goods**

Some markets can fail due to the nature of certain goods, or the nature of their exchange. For instance, goods can display the attributes of public goods or common pool resources, while markets may have significant transaction costs or informational asymmetry. In general, all of these situations can produce inefficiency, and a resulting

market failure. This can cause underinvestment, such as where a researcher cannot capture enough of the benefits from success to make the research effort worthwhile.

**Property right as right of control**

This is the underlying cause of market failure. A market is an institution in which individuals or firms exchange not just commodities, but the rights to use them in particular ways for particular amounts of time. Markets are institutions which organize the exchange of control of commodities, where the nature of the control is defined by the property rights attached to the commodities. This falls into two generalized rights excludability and transferability.

**Excludability:**

Deals with the ability of agents to control who uses their commodity, and for how long – and the related costs associated with doing so.

**Transferability:**

It reflects the right of agents to transfer the rights of use from one agent to another, for instance by selling or leasing a commodity, and the costs associated with doing so. If a given system of rights does not fully guarantee these at minimal (or no) cost, then the resulting distribution can be inefficient.

**Externalities** **(important)**

The allocation of resources to productive uses results from consumers and producers making decisions with the aim of maximizing satisfaction and profits, respectively. Private costs and benefits are taken into account in deciding purchases and organizing production. Social costs and benefits include the costs and benefits of consumer and producer but also costs borne by those who are not participating in that particular market. These are known as external costs and benefits or externalities. External costs and benefits can arise through both consumption and production. From a sustainable development perspective, external costs are most significant and arguably account for the failure of individuals, communities and nations to follow a

sustainable path.

**Externalities types:**

**Negative Externalities:** When economic agents not directly involved, negative externalities can exist, such as pollution.

**Positive Externalities:** Positive externalities in production means that social cost is less than private cost, and more of the good should be produced than will occur in a free market.

**Efficient market:** A market is said to be efficient if marginal price and marginal cost

are equal. If not then a market is a failure.

**External costs**

The shows the negative effects of a externality. i e pollution of industry.

**External benefits**

This shows the positive or beneficial effects of a externality. For example, the industry supplying smallpox vaccinations is assumed to be selling in a competitive market.

**Market failure - externalities**

**Common resources**

Externalities are third party effects arising from production and consumption of goods and services for which no appropriate compensation is paid. One of the major problems facing the environment is that **common resources** such as fish stocks and grazing land are not privately owned – commonly owned resources may lack the protection of property rights and are susceptible to over-exploitation because the marginal cost of extracting the resource for a private agent is close to zero.

When there are **environmental externalities**, the private equilibrium price and quantity determined by the interaction of market supply and demand is not the same as the social equilibrium which includes all internal and external costs.

In a **free market**, a producer will have little direct incentive to control pollution because

it is external – i.e. the profit-maximising supplier considers only his/her own private costs and benefits.

**Externalities and Market Failure**

When there is a harmful production externality, the production of a good imposes external costs. The marginal social costs exceed marginal private costs by the amount of the external costs. When choosing how much to produce, firms are only concerned with their own costs, the marginal private costs (MPC). The market supply curve is the MPC curve.

**Policies for Externalities (important)**

\_ Regulation

\_ Taxes/subsidies

\_ Pollution permits

**Market imperfections and natural resources (important)**

**Definition*:*** Imperfect competition is a competitive market situation where there are many sellers, but they are selling heterogeneous (dissimilar) goods as opposed to the perfect competitive market scenario.

Market imperfection can be defined as anything that interferes with trade. This includes two dimensions of imperfections. First, imperfections cause a rational market participant to deviate from holding the market portfolio. Second, imperfections cause a rational market participant to deviate from his preferred risk level. Market imperfections generate costs which interfere with trades that rational individuals make or would make in the absence of the imperfection. According to Hymer, market imperfections are structural, arising from structural deviations from perfect competition in the final product market due to exclusive and permanent control of proprietary technology, privileged access to inputs, scale economies, control of distribution systems, and product differentiation, but in their absence markets are perfectly efficient. The persistence of imperfect information across markets has contributed significantly to unsustainable production and consumption patterns. On the other hand, our examples illustrate how innovative entrepreneurs can develop solutions that help lead markets towards sustainability. As the collective knowledge of environmental degradation caused by unsustainable practices continues to grow, we are likely to see increasing pressure from policy makers, consumer groups, environmental activists, employees and others for firms to introduce innovative solutions to these problems in the hopes of stopping or even reversing environmental degradation patterns.

In imperfect competition buyer has to pay higher prices for resources to acquire additional resource (say land). In this case marginal resource cost (MRC) of resource

is equal to price and not to the additional cost. MRC is the increase in the total cost of

land from buying an additional unit of resource ( say land).

Equilibrium price in these case p2 > p1 and equilibrium quantity is Q1 < Q2

In imperfect market the resource owner charge higher prices and supply less quantity than in perfect market where price = quantity.

**Market and non market valuation of natural resources.**

The economic value of natural resources can be estimated by the price individuals will pay in order to obtain the benefits of the resources. The non-market values of that communities attach to natural resources, such as recreational, existence and protection values. To support efficient decision making, environmental valuation techniques are needed to quantify the value impacts resulting from changed catchment management. Several approaches to environmental valuation are there i.e. revealed preference techniques include travel cost and hedonic pricing methods, stated preference techniques include contingent valuation and choice experiments.

Stated preference techniques are increasingly being used to estimate non-market values. Nonmarket valuation is a method to estimate the value of goods and services that are not commonly bought and sold in markets. Non-market valuation is a sub-field within environmental economics that deals with theoretical and practical aspects of estimating monetary values on non-marketed environmental goods and services. Specifically, techniques include the travel cost method of recreational demand, the hedonic property pricing model, averting behavior analysis, contingent valuation, contingent rating/ranking, and stated choice experiments.

**Cost- Benefit analysis**

Cost- Benefitanalysis is a systematic method that compares the accumulative social benefits with the opportunity costs. Cost- Benefitanalysis can be more difficult to apply when the benefits or cost do not have a market value.

**Travel Cost Model**

The travel cost model estimates the implicit price of natural resources based on outlays of time and travel expenses. An evaluation of these costs incurred in using a natural resource (e.g. a state park) can be used to estimate the regional demand for the resource. The aggregate value of the resource can then be inferred from a combination of this demand and the number of visits to the site over time. This model can be applied to many recreational activities that utilize the more intangible natural resources such as bird watching.

**Random Utility Models**

The random utility model is similar to the travel cost model except that rather than focusing on the number and overall costs of trips to different sites, it estimates the value individuals place on particular sites based on the attributes of the site.

**Hedonic Pricing Methods**

Hedonic pricing methods involve a comparison of specific sites that differ only by some environmental attribute such as proximity to a forested area or availability of a view. Comparison of the property value between two house sites provides an indication of the value to the individual paying a higher price for the site with the preferred attribute.

**Existence value**:

This is the value that individuals place on natural resources that they want to remain unaltered, even though they may not use or visit the area.

**Economic value:**

It is one way to measure the value of a resource. Economic values are useful to consider when making economic choices – trade offs in allocating resources. Measures of economic value are based on individual preferences.

\*\*\*\*\*\*\*\*\*\*\*