

DETAILS EXPLANATIONS**Paper Code : RPSCEE27 | RPSCE27 | RPSCEM27****[PART : A]**

1. World bank only uses per capita income for measuring development while UNDP uses many other factors like infant mortality, healthcare facility, education level which help in improving the quality of life and helps in making the citizens more productive.
2.
 - Generation of energy
 - Development of innovation and discoveries.
3. Globalisation means integrating the economy of a country with the economics of other countries under conditions of free flow of trade, capital and movements of persons across borders.
4. A desert is defined as any area that gets less than ten inches of rainfall per year. It is an arid region characterized by extremely high or low temperature and has scarce vegetation. Deserts can be hot or cold. It is an uncultivated region without inhabitants, a wilderness, a dry barren, sandy region, Naturally incapable of supporting almost any plant or animal life.
5.
 - It is one of the most environment friendly clean and safe energy resources.
 - There is no fuel consumption, hence low operating cost.
6. The "rural sector" means any place as per the latest census, which meet the following criteria.
 - A population of less than 5000.
 - Density of population less than 400 per sq. km.
 - More than 25% of the male working population is engaged in agriculture pursuits.
7. There are two methods of water conservation.
 - Rain water harvesting.
 - Watershed Management
8. Appropriate Government means in relation to a public authority which is established, constituted, owned, controlled or substantially financed by Fund provided directly or indirectly by the central government or the union territory administration.

9. Technology transfer is the process by which a developer of technology makes its technology available to a commercial partner that will exploit the technology. The term technology transfer can be defined as the process of movement of technology from one entity to another.
10. • Factories act 1948.
• Weekly holiday act 1942.
• Industrial Employment act 1946.
• National and Festival Holidays act 1963.
11. Motivation is important to an individual as :
- Motivation will help him to achieve his personal goals.
 - Motivation will help in self development of individual.
12. Net present value is a popular capital budgeting technique that takes into account the time value of money. It uses net present value of the investment project as the base to accept or reject a proposed investment in projects like purchase of new equipment, purchase of inventory, expansion or addition of existing plants assets and the installation of new plants etc.
13. System Application and products in Data processing.
14. Sources of radioactive pollution include :
- Nuclear power plant accidents or leakage.
 - Improper Nuclear waste disposal.
 - Uranium mining operation.
15. Depletion for renewable resources refers to the part of the harvest, logging, catch and so forth above the sustainable level of the resource stock. For non-renewable resources the quantity of resources extracted.
16. A carbon credit is a permit or certificate allowing the holder to emit carbon-dioxide or other green house gases. the credit limits the emission to a mass equal to one ton of carbon dioxide. the issuance of carbon credit aims to reduce the emission of green house gases into the atmosphere.

17. Project Evaluation can be defined as a process which determines as systematically and as objectively as possible the relevance, effectiveness, efficiency, sustainability and impact of activities in the light of a project/programme performance, focusing on the analysis of the programme.
18. Primary air pollutants are derived from direct burning of source like coal which causes release of pollutants. The example of primary pollutants are CO₂, CO, SO₂, Hydrocarbons like CH₄, ethylene, particulate matters, NO₂ etc.
19. The main causes of eutrophication are :
- Natural run-off of nutrients from the soil and the weathering of rocks.
 - Run-off of inorganic fertilizer and manure from farms.
 - Run-off from erosion (i.e., from mining, construction work etc.)
 - Discharge of detergents and partially treated or untreated sewage.
20. It is an educational channel which carries programmes on IGNOU's courses, general awareness programmes, and interactive sessions with subject experts and scholars besides promoting nationalism, harmony and peace. The channel is available free of cost and it is a "must carry channel for all cable/TV/DTH operators."

[PART : B]

21. The objectives of rural industries are :
- To create more employment opportunities with less investment.
 - To solve unemployment problem.
 - To attain self reliance.
 - To improve standard of living of people.
 - To reduce regional imbalances.
 - To remove economic backwardness of rural and less developed regions of the economy.
22. Functions of trade unions in India :
- **Collective Bargaining :**
It is the technique by which dispute as to conditions of employment is resolved amicably by agreement rather than oppression, in this process negotiation and discussions take place between employer and employee in respect to working conditions.

- Trade unions protect the worker from wages like, provide job security through peaceful measures.
- Trade unions also help in providing financial and non-financial aid to workers during lock out or strike or in medical need.
- It has also to be borne in mind while making an agreement that the interest of the workers who are not the members of trade union are also protected and the worker are not discriminated.

23. Advantages of Flyash Utilization :

- Saving of space for disposal.
- Saving of scarce of natural resources.
- Energy saving, firstly because the material is automatically produced as a by product and no energy is consumed for its generation and secondly because it can replace material which otherwise would need to be produced by consuming energy.
- Protection of environment, as in construction it can partly replace cement, production of which entails energy consumption and CO₂ emissions.

24. Factors Needing attention of technology Introduction :

- The technology selected for transfer should be appropriate and the purpose for which it is intended to be transferred.
- Status of development is another important issue with regards to transfer of technology.
- The technology selected for use should not be so much expensive. It should be competitive otherwise it will not be commercially accepted.
- Evaluation of technology is important before it is transferred from lab to field or industry. This evaluation has to be done to find out whether the claims made are justified by actual facts.
- Transferring agency may be like NRDC is essential because technology transfer is not only a matter of technology but also a matter of commerce and law.
- Provision of guarantees with regard to performance of the technology on commercial scale is equally important.

25. The full form of :

- **GPS** : Geographic positioning system.
- **IREDA** : Indian Renewable Energy Development agency.
- **ICSSR** : Indian council of Social Science Research.
- **OECD** : Organisation of Economic co-operation and development.
- **UNED** : United Nations Environment and development programme.

26. Objectives of human Resource development (HRD) :

- **Development of Traits** :
HRD is associated with the development of total personality so that these can show and use their talent for the benefit of the organisation.
- **Ability Development** :
HRD makes capable employees. Thus they can develop their capability by which they can do their present job easily.
- **Creative Motivation** :
HRD manager motivates employees and improve their level of performance.
- **Good Relation** :
HRD manager stresses the need of co-ordination which is used for the benefits of himself and for the benefits of those who come in his/their touch.
- **Develop Team Spirit** :
HRD develops the spirit of team work; team work for it is used for the effective co-operation and co-ordination of each employee which ultimately check Industrial unrest.

27. E-commerce offers some advantages over conventional shopping such as :

- It is cheaper.
- It provides interaction with customer.
- It does not require high street real estate.
- It required less inventory.
- It provides 24 hours availability of product.
- It offers global reach both to buyer and seller.

28. Major Factors responsible for social development :
- Increase in real per capita income that is National income divided by population.
 - The extent to which national income has increased and what is the growth rate of this income.
 - What is the extent of urbanisation, literacy and education rate.
 - What is the share of National income coming from the primary, secondary and tertiary sectors of the country.
 - To what extent application of science and technology is made and what is the magnitude of research in the various fields.
 - There should be multi-dimensional development and people should have Scientific temperament and cultural attitude.
29. Waste both in Urban and rural areas have many types. However, for the sake of convenience they are classified into agricultural waste, animal waste, aquatic waste, community waste, industrial waste, as well as waste from construction materials. An engineer can dispose off such waste in the following manner :
- Adopt waste separation technology.
 - Use waste destruction technology.
 - Use open dumps.
 - Exercise Hog feeding.
 - Do ocean dumping.
 - Do recycling.
 - Do land filling.
 - Extract energy from waste.
 - Reduce waste stream.
30. Industrial waste is the waste generated by industrial activities at factories, mills and mines. Toxic waste, chemical waste, industrial solid waste and municipal solid waste are designations of industrial waste. Sewage treatment and other treatment methods can be used to clean water tainted with industrial waste.
31. The following are the characteristics of BOT project :
- BOT projects are associated with uncertainties and high risk.
 - BOT projects transfer the risk to the private sector.
 - BOT projects are complex structures comprising multiple inter dependent agreements among the various participants.

- BOT projects is raising of finance entirely by the private sector without the involvement of government. The private sector is fully responsible for a design, construction, finance and operation and maintenance.
 - Financing costs for BOT projects tend to be high, as the legal fees associated with their contractual arrangements are much higher than those of standard commercial contracts.
32. Sand Dune Stabilization principle include stop the blowing of sand at its source and reduction of threshold velocity of wind at the sand dune surface by providing obstruction of some kind-bunch of grasses and shrubs, wooden planks etc.
- So stabilizing sand dunes involves multiple actions. Planting vegetation reduces the impact of wind and water. Wooden sand fences can help retain sand and other material needed for a healthy sand dune ecosystem.
- Footpaths protect dunes from damage from foot traffic. They can also protect beaches from erosion and recruit sand to eroded beaches and to many other places too.
- Different techniques are also used for stabilization of sand dunes like Mechanical dune stabilization technique, Mulch or protective screen technique, Aerodynamic method and Biological fixation technique etc.

[PART : C]

33. The following are the main causes of unemployment :

(i) Caste System :

In India caste system is prevalent. The work is prohibited for specific castes in some areas. In many cases, the work is not given to the deserving candidates but given to the person belonging to a particular community. So this gives rise to unemployment.

(ii) Slow Economic Growth :

Indian economy is underdeveloped and role of economic growth is very slow. This slow growth fails to provide enough unemployment opportunities to the increasing population.

(iii) Increase in Population :

Constant increase in population has been a big problem in India. It is one of the main causes of unemployment.

(iv) Agriculture is a Seasonal Occupation :

Agriculture is underdeveloped in India. It provides seasonal employment. Large part of population is dependent on agriculture. But agriculture being seasonal provides work for a few months. So this gives rise to unemployment.

(v) Joint Family System :

In big families having big business, many such persons will be available who do not do any work and depend on the joint income of the family. Many of them seem to be working but they do not add anything to production. So they encourage disguised unemployment.

(vi) Fall of Cottage and Small industries :

The industrial development had adverse effect on cottage and small industries. The production of cottage industries began to fall and many artisans became unemployed.

(vii) Slow Growth of Industrialisation :

The rate of industrial growth is slow. Though emphasis is laid on Industrialisation yet the avenues of employment created by Industrialisation are very few.

(viii) Less Savings and Investment :

There is inadequate capital in India. Above all, this capital has been judiciously invested. Investment depends on savings. Savings are inadequate. Due to shortage of savings and investment, opportunities of employment have not been created.

(ix) Causes of Under Employment :

- Inadequate availability of means of production is the main cause of under employment. People do not get employment for the whole year due to shortage of electricity, coal and raw materials.

(x) Defective Planning :

Defective planning is the one of the cause of unemployment. There is wide gap between supply and demand for labour. No Plan had formulated any long term scheme for removal of unemployment.

(xi) Expansion of Universities :

The number of universities has increased manifold. As a result of this educated unemployment or white collar unemployment has increased.

(xii) Inadequate Irrigation Facilities :

Even after the completion of 9th five plans, 39% of total cultivable area could get irrigation facilities. Due to lack of irrigation, large area of land can grow only one crop in a year. Farmers remain unemployed for most time of the year.

(xiii) Immobility of Labour :

Mobility of labour in India is low. Due to attachment to the family, people do not go to far off areas for jobs. Factors like language, religion, and climate are also responsible for low mobility. Immobility of labour adds to unemployment.

34. Rural Development (RD) is a process, which aims at improving the well-being and self-realization of people living outside the urbanized areas through collective process.

Need and Importance of rural development :

Rural development is a national necessity and has considerable importance in India because of the following reasons.

- To develop rural area as whole in terms of culture, society, economy, technology and health.
- To develop living standard of rural mass.
- To develop rural youths, children and women.
- To develop and empower human resource of rural area in terms of their psychology, skill, knowledge, attitude and other abilities.
- To develop infrastructure facility of rural area.
- To provide minimum facility to rural mass in terms of drinking water, education, transport, electricity and communication.
- To develop rural institutions like Panchayat, cooperatives, post, banking and credit.
- To provide financial assist to develop the artisans in the rural areas, farmers and agrarian unskilled labor, small and big rural entrepreneurs to improve their economy.
- To develop rural industries through the development of handicrafts, small scaled industries, village industries, rural crafts, cottage industries and other related economic operations in the rural sector.
- To develop agriculture, animal husbandry and other agricultural related areas.
- To restore uncultivated land, provide irrigation facilities and motivate farmers to adopt improved seed, fertilizers, package of practices of crop cultivation and soil conservation methods.

- To develop entertainment and recreational facility for rural mass.
- To develop leadership quality of rural area.
- To improve rural marketing facility.
- To minimize gap between the urban and rural in terms of facilities availed.
- To improve rural people's participation in the development of state and nation as whole.
- To improve scopes of employment for rural mass.
- For the sustainable development of rural area.
- To eliminate rural poverty.
- To solve the problems faced by the rural mass for their development.

35. Rural Road Connectivity is not only a key component of Rural Development by promoting access to economic and social services and thereby generating increased agricultural incomes and productive employment opportunities in India, it is also as a result, a key ingredient in ensuring sustainable poverty reduction. Notwithstanding the efforts made, over the years, at the State and Central levels, through different Programmes, about 40% of the Habitations in the country are still not connected by All-weather roads. It is well known that even where connectivity has been provided, the roads constructed are of such quality (due to poor construction or maintenance) that they cannot always be categorized as All-weather roads.

With a view to redressing the situation, Government has launched the Pradhan Mantri Gram Sadak Yojana on 25th December, 2000 to provide all-weather access to unconnected habitations. The Pradhan Mantri Gram Sadak Yojana (PMGSY) is a 100% Centrally Sponsored Scheme. 50% of the Cess on High Speed Diesel (HSD) is earmarked for this Programme.

■ **Objectives :**

The primary objective of the PMGSY is to provide Connectivity, by way of an All-weather Road (with necessary culverts and cross-drainage structures, which is operable throughout the year), to the eligible unconnected Habitations in the rural areas, in such a way that all Unconnected Habitations with a population of 1000 persons and above are covered in three years (2000-2003) and all Unconnected Habitations with a population of 500 persons and above the end of the Tenth Plan Period (2007). In respect of the

Hill States (North-East, Sikkim, Himachal Pradesh, Jammu & Kashmir, Uttaranchal) and the Desert Areas (as identified in the Desert Development Programme) as well as the Tribal (Schedule V) areas, the objective would be to connect Habitations with a population of 250 persons and above. The PMGSY will permit the Upgradation (to prescribed standards) of the existing roads in those Districts where all the eligible Habitations of the designated population size have been provided all-weather road connectivity. However, it must be noted that Upgradation is not central to the Programme and cannot exceed 20% of the State's allocation as long as eligible Unconnected Habitations in the State still exist. In Upgradation works, priority should be given to Through Routes of the Rural Core Network, which carry more traffic.

36. Industrial relations describe relationship between management and employees or among employees and their organizations that characteristics or grow out of employment.

Today this term stands for such a wide variety of practices and institutions and has been used in such divergent context, that to define just the essence of it, is an extremely complicated task. However a few element of this term are clear. These are :

- That originally the term stood for employer –employee relations in an industry.
- Later on, when the worker organized themselves into trade unions and the latter started dealing with the employers trade union activities also came to be included under this term.
- Still later, when the relation between employers and employees came to be vested with public importance and ceased to be private the state had to be involved in such relations therefore the activities of the state designed to modify regulate and control relations between employers and employees also become a part of industrial relations.
- The term industry is no longer confined to a small of economic activity but has come to include all gainful employments, including service under the state. The relationship between the state and its employee-employer relationship in the industry. Therefore, employer- employee relationship under public services has also come to be covered by the term.

Considering all these elements mentioned above the term industrial relations can be taken to stand for employees union employers government relationship in employment.

Functions of Trade Unions in the India :

As per the Indian Trade Union Act, 1926, the primary function of a trade union is to protect and promote the interests of the workers and the conditions of their employment. They can also have other objectives, which are not inconsistent with this primary purpose or opposed to any law. In India, trade unions generally undertake the following functions :

- To achieve higher wages and better working and living conditions for the members.
- To acquire control over running of the industry by workers.
- To minimize the helplessness of the individual workers by making them stand-up unitedly and increasing their resistance power through collective bargaining; protecting the members against victimization and injustice by employers.
- To raise the status of the workers as partners in industry and citizens of society by demanding an increasing share for them in the management of industrial enterprises.
- To generate self-confidence among the workers.
- To encourage sincerity and discipline among workers.
- To take up welfare measures for improving the morale of the workers.

37. *Difference between renewable and non-renewable energy resources :*

Renewable Energy :

- Renewable energy is energy which is generated from natural sources i.e. sun, wind, rain, tides and can be generated again and again when required.
- They are available in plenty and by far most the cleanest sources of energy available on this planet. For e.g., Energy that we receive from the sun can be used to generate electricity. Similarly, energy from wind, geothermal, biomass from plants, tides can be used this form of energy to another form.

Advantages of Renewable Sources :

- The sun, wind, geothermal, ocean energy are available in the abundant quantity and free to use.

- The non-renewable sources of energy that we are using are limited and are bound to expire one day.
- Renewable sources have low carbon emissions, therefore they are considered as green and environment friendly.
- Renewable helps in stimulating the economy and creating job opportunities. The money that is used to build these plants can provide jobs to thousands to lakhs of people.
- You don't have to rely on any third country for the supply of renewable sources as in case of non-renewable sources.
- Renewable sources can cost less than consuming the local electrical supply. In the long run, the prices of electricity are expected to soar since they are based on the prices of crude oil, so renewable sources can cut your electricity bills.
- Various tax incentives in the form of tax waivers, credit deductions are available for individuals and businesses who want to go green.

Disadvantages of Renewable Sources :

- It is not easy to set up a plant as the initial costs are quite steep.
 - Solar energy can be used during the day time and not during night or rainy season.
 - Geothermal energy which can be used to generate electricity has side effects too. It can bring toxic chemicals beneath the earth surface onto the top and can create environmental changes.
 - Hydroelectric provide pure form of energy but building dams across the river which is quite expensive can affect natural flow and affect wildlife.
-
- To use wind energy, you have to rely on strong winds therefore you have to choose suitable site to operate them. Also, they can affect bird population as they are quite high.

Non-Renewable Energy :

- Non-Renewable energy is energy which is taken from the sources that are available on the earth in limited quantity and will vanish fifty-sixty years from now. Non-renewable sources are not environmental friendly and can have serious effect on our health.
- They are called non-renewable because they can be re-generated within a short span of time, Non-renewable sources exist in the form of fossil fuels, natural gas oil and coal.

Advantages of Non Renewable Sources :

- Non-renewable sources are cheap and easy to use. You can easily fill up your car tank and power your motor vehicle.
- You can use small amount of nuclear energy to produce large amount of power.
- They are considered as cheap when converting from one type of energy to another.

Disadvantages of Non Renewable Sources :

- Non-renewable sources will expire some day and we have to use our endangered resources to create more non-renewable sources of energy.
- The speed at which such resources are being utilized can have serious environmental changes.
- Non-renewable sources release toxic gases in the air when burnt which are the major cause for global warming.
- Since these sources are going to expire soon, prices of these sources are soaring day by day.

38. *Definition of Conflict Management :*

Conflict management is the practice of being able to identify and handle conflicts sensibly, fairly and efficiently. Since conflicts in a business are a natural part of the workplace, it is important that there are people who understand conflicts and know how to resolve them. Conflict Management involves the steps undertaken to prevent the conflict at the right time and also helps to resolve it in an effective and smooth manner.

At workplaces, transparency must be maintained at all levels and there must be a single point of contact to address the issues of individuals. The subordinates should have an easy access to their superiors to avoid confusions. Conflict Management reduces tensions and employees feel motivated to give their level best to the organizations

Conflict Management Skills :

Conflict management plays a very important role in preventing conflicts among individuals. A conflict starts when individuals think on different lines and find it very difficult to accept each other's ideas. Conflict must be avoided as it destroys the peace, lowers the productivity as well as demotivates the individuals. All the factors leading to a fight must be explored and efforts must be made to prevent a conflict. For controlling the conflict an individual needs certain skills for the same.

- ***Effective Communication Skills :***
Effective communication skills are of utmost importance to prevent conflicts. While interacting with others, you have to take special care of your speech and the way you speak. Never ever shout on anyone, even if you do not agree with him. Always speak in a polite but convincing manner. Greet others with a warm smile. It works. Be very specific and precise in your speech. Do not use complicated words and confuse others. Keep a control on your tongue and do not use words which might hurt the sentiments of others. Avoid using abusive languages.
- ***Listening Skills :***
An individual must not give his expert comments unless and until he is very clear what the other person wants. Always be a good listener. Don't just jump to conclusions and assume things on your own. Always listen to the other side of the story as well.
- ***Discussion :***
Don't just follow the rumours blindly, do discuss with others as well. It is always better to sit and discuss the issues on an open forum. All the participants must give their inputs and efforts must be made to find out an alternative. Invite all the members involved and never ignore anyone as it would never solve the problem. Everyone has a right to express his views and a middle way has to be found.
- ***Patience :***
One needs to be very patient to avoid conflicts. There would be people at your workplace who would try to provoke you to fight. Never ever get influenced. Always follow your instincts and support what is right. Be very sensible and patient. Learn to keep a control on your emotions. Do not ever lose your temper as it would only make the situation worse.
- ***Never Criticize :***
Make the other person understand if he is wrong. Don't criticize him as it would definitely hurt his sentiments. The other person might not be as intelligent as you are, but you have no right to make fun of him. Others will look up to you if you guide the other person well and make him realize his mistakes.
- ***Positive Attitude :***
Positive attitude is essential to avoid fights and conflicts. In offices, never ever play the Blame game. No one is perfect and if you have done anything wrong, have the courage to accept it. Human Beings are bound to make mistakes but never try to put the blame on anyone else's shoulders. If you don't agree with anyone's views, discuss with him on his face, he will like it.

- **Ignore Others :**

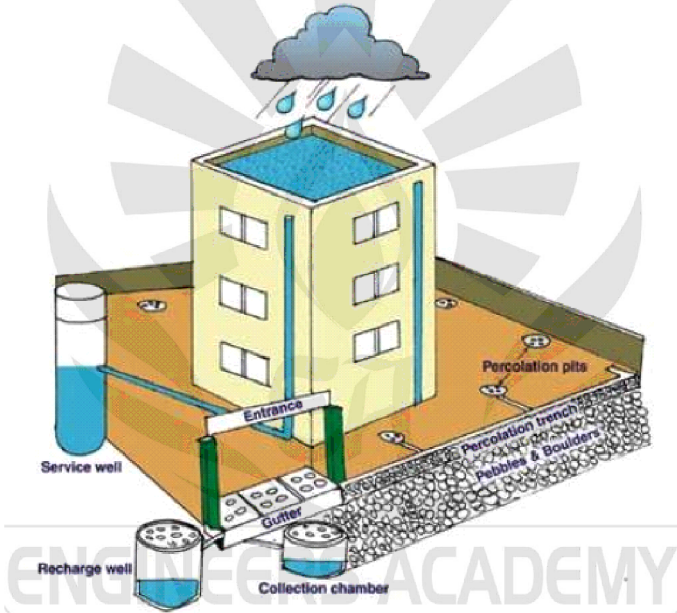
Individuals must try to adopt the middle path approach which considers the interests of one and all. Don't unnecessarily waste your energy for a person who is too adamant and is not willing to compromise at all.

39. **Components of Rainwater Harvesting System :**

The common components of a rainwater harvesting system are :

- **Catchments :**

The surface which directly receives the rainfall and provides water to the system is called catchment area. It can be a paved area like a terrace or courtyard of a building, or an unpaved area like a lawn or open ground. A roof made of reinforced cement concrete (RCC), galvanized iron or corrugated sheets can also be used for water harvesting.



- **Coarse Mesh :**

It prevents the passage of debris, provided in the roof.

- **Gutters :**

Channels which surrounds edge of a sloping roof to collect and transport rainwater to the storage tank. Gutters can be semi – circular or rectangular and mostly made locally from plain galvanized iron sheet. Gutters need to be supported so they do not sag or fall off when loaded with water. The way in which gutters are fixed mainly depends on the construction of the house, mostly iron or timber brackets are fixed into the walls.

- **Conduits :**

Conduits are pipelines or drains that carry rainwater from the catchment or roof top area to the harvesting system. Commonly available conduits are made up of material like polyvinyl chloride (PVC) or galvanized iron (GI).

- **First-flushing**

A first flush device is a valve which ensures flushing out of first spell of rain away from the storage tank that carries a relatively larger amount of pollutants from the air and catchment surface.

- **Filters**

The filter is used to remove suspended pollutants from rainwater collected from roof top water. The Various types of filters generally used for commercial purpose are Charcoal water filter, Sand filters, Horizontal roughing filter and slow sand filter.

- **Storage facility**

There are various options available for the construction of these tanks with respect to the shape, size, material of construction and the position of tank and they are: -Shape : Cylindrical, square and rectangular.

- **Recharge Structures**

Rainwater Harvested can also be used for charging the groundwater aquifers through suitable structures like dug wells, bore wells, recharge trenches and recharge pits.

Various recharge structures are possible – some which promote the percolation of water through soil strata at shallower depth (e.g., recharge trenches, permeable pavements) whereas others conduct water to greater depths from where it joins the groundwater (e.g. recharge wells).

At many locations, existing structures like wells, pits and tanks can be modified as recharge structures, eliminating the need to construct any fresh structures.

Some of the few commonly used recharging methods are recharging of dug wells and abandoned tube wells, Settlement tank, Recharging of service tube wells, Recharge pits, Soak ways /Percolation pit, Recharge troughs, Recharge trenches, Modified injection well.

