QUESTION NO: 2:-

INTRODUCTION:

Pakistan's economy is in difficult phase and the major problem remains the circular debt. Economic future of a state depends on the energy sector. This energy secotor comprises manly of electricity or power generation system. Overwhelming dependency of major departments including industry and agriculture on electricity makes it significant for a country's economic status. Persistent loadshedding and expensive electricity generation are the most prominent and persistent issues of the energy sector. Non-renewal of agreements with IPP's is another hurdle in economic growth.

PAKISTAN'S CRCULAR DEBT CRISIS:

Circular debt refers to financial situation where entities within an economic system ave money to each other creating a cycle of unpaid obligations. The term

Circular debt is primarily linked with the energy sector of a state. It includes the situation where power producers, distributors and consumers are caught in a loop of unpaid bills and delayed payment. This leads to financial instability. Pakistan's power sector is facing a severe financial crisis, the amount in this head has reached to **Rupees 2.6 trillion** by the end of October 2023

ROOT CAUSES OF PAKISTAN'S CIRCULAR DEBT:

1. PROVISION OF SUBSIDIZED TARIFFS:

One of the primary causes of circular debt includes the government's practice of subsidizing electricity tariffs. It provides temporary relief to the consumers but places a heavy burden on the national exchequer.

2- INEFFICIENT ENERGY GENERATION AND LOADSHEDDING:

The energy sector in Pakistan is riddled with insufficient energy production. The major reasons for this includes outdated power plants, line losses and theft. Due to inefficient production, persistant loadshedding is observed. 8-12hrs loadshedding in rural area during winters in 2023 is alarming for the state.

3. EXPENSIVE ELECTRICITY GENERATION:

Pakistan generates Asia's most expensive energy and third most expensive worldwide. This expensive generation of energy leads to the circular debt rise as the payments remain pending. For the domestic pupose per unit cost ranges from 6-34pkr. In comparison with Bangladesh Pakistan produces 28-30% more expensive electricity than them.

4- NON - PAYMENT AND DEFAULT:

The issue of non-payment of bills by the consumers is the one causing major harm to the economy. The far flung areas do not pay their bills. The incidence of refraining from paying bills has hurt the economy of Pakistan in the longer run. Weak billing and collection systems are also responsible for the issue.

5- INDEPENDENT POWER PRODUCERS:

With IPPs, the government has signed expensive and very long-term agreements, with private power producers. These contracts prove to be a burden on Pakistan's economy. The non-renewal of these agreements serves as a major setback to the revival of economic stability.

6. LINE LOSSES AND THEFT:

The transmission lines in the energy sector face immense line losses but full payment is done regardless of the

the energy lost. The incidents of electricity theft often go unchecked and are a contributor to the economic instability due to rising circular debt.

SUSTAINABLE SOLUTIONS TO OVERCOME CIRCULAR DEBT CRISIS:

1- RENEWAL OF AGREEMENTS WITH IPPS.

The renegotiation of contracts with IPPs to make them more favorable in terms of pricing and duration. Encouraging the IPPs to invest in renewable energy projects. Non-dollar payment to the local IPPs. The renegotiation will heal the ailing economy of Pakistan due to circular debt.

2- ENDING CAPACITY PAYMENTS TO IPPS:

The renegotiation of contract with IPPs must negotiate on end to the capacity payment.

Previously minimum 33% payment had to be made even if none of it was produced.

3- SHIFT TOWARDS LOCAL AND CHEAPER ENERGY GENERATION:

The shift towards energy generation locally is important. The installation of Hydel projects like Dasu, Sukki kinari etc. Moreover installation of wind projects will decrease dependency on expensive energy. The installation of wind plants in the coastal areas will play a significant role.

4- SHIFT TOWARDS RENEWABLE ENERGY:

Moving towards solar energy generation and otherrenewable sources will be a step towards stability. National level projects must be launced regarding solar panels. The government should provide subsiding on the use of solar panels.

5- REVAMPING TRANSMISSION LINES:

There is an immediate requirement of the reramping of the old infrastructure and the transmission lines. The lines losses cost much and add up to the circular debt need to reramped.

6- CONTROLLING THEFT AND STRICT BILLING PROCESS:

The control of electricity theft is very necessary. The incidents of theft left unchecked will increase to an unimaginable level. Policies and laws must be implemented to ensure the punishment for those stealing energy. Those reluctant to pay the bills must be supervised and dealt with.

7- PRIVATIZATION OF POWER GENERATION:

The privatization of power generation and distribution will lead to decrease in circular debt. The investments by private sector are need of the time and will revive the ailing economy of Pakistan.

8- ENSURING BILL COLLECTION FROM ALL GOVERNMENT DEPARTMENTS:

Unjustified subsidies are given to the government departments which need to be renewed. Collection of pending bills from all government institutes will ease the burden of circular debt.

CONCLUSION:

In a nutshell the energy sector of Pakistan exacerbates the circular debt. Line losses, expensive energy generation due to agreements with IPPs cause significant rise in circular debt. Efficient policy formulation and implementation regarding theft and reluctance to pay bills must be ensued. The stability of Pakistan's economy is linked with the end of vicious cycle of circular debt. Renewal of agreements with the IPPs along with other structual reforms would reduce the burden of circular debt on Pakistan's economy.

QUESTION NO: 3:-

INTRODUCTION:

Urbanization and population growth significantly affect domestic water supply and resources. As the cities expand, there is an increased demand for water leading to higher consumption. The rising population also excerbates the process. Pakistan needs to invest in water infrastructure including pipelines and treatment plants. Effective introduction of water waste treatment will ensure the management of available water. Establishment of rainwater harvesting systems and community awareness will ensure water conservation. Afforestation and management of resources will help deal with provision of clean drinking water.

EFFECT OF URBANIZATION AND POPULATION GROWTH:

Urbanization and population growth leads to competition between

individuals for survival - Increasing population increase call for industrialization and domestic water, increasing burden on infrastructure for waste-water management. Some of the issues include:

1. INCREASED WATER DEMAND.
2. Infrastructure strain.
3. Land Use challenges.
4. Water Pollution.
5. Ground water depletion.
6. Impact of climate change

POLICIES FOR ENHANCING DOMESTIC WATER MANAGEMENT:

Policies to enhance domestic water management include the following measures.

1. INVESTMENT IN INFRASTRUCTURE:

Allocation of resources for the development and maintenance of water infrastructure including reservoirs, pipelines and treatment plans. Upgradation of existing infrastructure can improve water supply and distributions.

2- **EFFICIENT WATER USE PRACTICES:**
Promoting the water efficient practices in agriculture and houshold. Implementing irrigation techniques that use water more efficiently and lead to no water loss in the process save water.

3- **SYSTEM FOR HARVESTING RAIN WATER:**
The installation of systems for harvesting rainwater ~~system~~ in urban and rural areas to capture and store rain water. The collected water can be used for daily domestic requirements.

4- **ESURE CITIZEN PARTICIPATION:**
Creating awareness and ensuring participation of citizens in the process of water management is important. Awareness regarding water conservation and sustainable practices of use.

5- **GROUND WATER MANAGEMENT AND POLICY REFORMS:**
Measures to regulate and monitor ground water extraction. The over-extraction can lead to depletion, so the practices of sustainable management are crucial including methods for artificial recharge.

MEASURES FOR WATER CONSERVATION.

1- PROMOTE EFFICIENT PRACTICES IN AGRICULTURE:

Promotion of efficient practices in agriculture and irrigation methods. These include drip irrigation and sprinkler systems. Encouraging farmers to adopt water-saving technologies.

2- COMMUNITY AWARENESS:

Conduction of awareness campaigns involving the local communities about the need of time. Additionaly encouraging communities for water saving habits is vital.

3- LEAK DETECTION AND REPAIR:

Machines and check for leakage detection must be introduced so that the repair can be made on time. This will encuse reduction of water loss and hence conservation.

4- AFFORESTATION AND RESEARCH INNOVATIVES:

The inclusion of afforestation programs in development agenda and help regarding research

on the field. Afforestation drive across the state will lead to more plants and more conservation.

MEASURES FOR PROVISION OF CLEAN WATER:

1. Monitoring water quality.

The first important step is the monitoring and strict evaluation of water quality. Regular testing of the quality of drinking water resources will ensure provision of clean water.

2. Infrastructure improvement:

The improved infrastructure for provision of water indicates a step towards provision of clean water to the public.

3. Water Treatment Plans implementation:

The installation of water treatment plants and maintenance of existing one is also very important for maintaining quality. The international standard must be followed.

4- **Raising Public Awareness:**
Awareness regarding water quality and importance of clean drinking water will ensure the use of clean water in society.

5- **SANITATION INFRASTRUCTURE UPGRADATION:**
Improvement of sanitation infrastructure to improve contamination of water resources. Proper disposal of sewage and waste reduces risk of diseases.

6- **REGULATORY FRAMEWORK:**
Strengthen and enforce the regulation related to the check of water quality. The regulated check will ensure the standard of water to be maintained. Implementation of penalties will help reduce illegal work.

CONCLUSION:-