

# Additive Manufacturing: A Review

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**Abstract**— Added substance producing innovations can now be utilized to make metallic parts. This leap forward in assembling innovation makes conceivable the manufacture of new shapes and mathematical elements. The assembling practicality of test leaves behind these cycles has been the subject of a few examinations, the forward leap in assembling is yet to be followed by a forward leap in planning process. The paper focusses on three significant parts of added substance producing late advances on material science, process improvement, and upgrades on plan thought. The primary target of the paper is to order the ongoing information on added substance producing and to feature its expected purposes.

## 1. INTRODUCTION

Added substance fabricating normally known as 3D printing permits the immediate change of plan development records into completely useful items. It is a course of joining materials to make object from 3D model information normally layer upon layer. In this the material is joined or set under PC control to make a three-layered object, with material being included, for example, fluid particles or powder grains being melded together normally layer by layer.[12]

The fourth modern era, to be specific Industry 4.0, is the new development on keen mechanization innovation. In this new time, the usage of current assembling abilities inside the setting of coordinating book data advancements assumes a significant part on monetary seriousness. As outlined in, Industry 4.0 offers digital and actual frameworks to coordinate productively, intending to assemble industrial facilities by rethinking the job of people. [1]

To recognize the attributes of these cycles, the survey guideline of current metallic added substance fabricating. We will then, at that point, center on the qualities of most elevated significance for the architects. We will, specifically, bargain with the assembling requirements and capacities of these cycles. Then, at that point, propose a four-stage planning approach to exploit these new fabricating processes in light of the age of an introductory shape, its investigation to characterize a bunch of mathematical boundaries, the adjusting of these boundaries to get an improved shape and the approval of this shape. At the end, we will close this review and talk about some possibilities on the eventual fate of added substance fabricating. [3]

## 2. DESIGNING AND MATERIALS IN ADDITIVE MANUFACTURING

The maximum capacity of additive manufacturing, in any case, we should alter the way we plan things as well. As configuration engineers, our most memorable test is to break out of the calculated obstructions made by traditional creation procedures. Analysts in mental brain research and designing plan have illustrated that planners experience a strong inclination to stick to plans they have experienced already. The trouble is that most creators have essentially and frequently only noticed, picked apart, and planned ordinarily created parts. Those parts are dependent upon all of the plan for assembling rules furthermore, limitations that go with infusion shaping, projecting, machining, furthermore, other normal assembling strategies.[2]

When given a fresh start and an added substance producing machine, it is hard for the vast majority of us to consider attractive plan that can't be made in differently. For example, the ones in the going with are significant devices for evolving viewpoints, as are Added substance fabricating schooling drives that present new ages of designers to these instruments furthermore, strategies. [21]

The developing number of added substances producing processes accessible with various cycles to join material. Each interaction is restricted to one kind of material and just few can handle more than one material thermoplastics of various variety. Somewhat recently the development of these cycles was generally expanded because of exploration on new materials, improvement of better hardware and a more profound comprehension of the cycles which prompted hearty and stable cycles. From an modern viewpoint processes equipped for delivering powerful leaves behind high strength and long haul solidness are generally applicable, in light of the fact that they permit the immediate creation of end client parts. [17]

The subsequent stage applies every one of the principles and imperatives characterized by the necessities, considering a few viewpoints topological advancement, material, mechanical properties, and so forth. Prior to that, nonetheless, pivotal choices should be made concerning practical deterioration and useful reconciliation. This underlying choice suggests the vital arrangement of parts and starts the meaning of individual articles in the framework.[4]



# Benefits of Rice Husk Ash used in Cement Concrete: A Review

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**Abstract**—The use of rice husk ash as a partial substitute for cement is one of several initiatives being taken to lessen the negative impact of the global construction industry. As of yet, there isn't a way to forecast the strength properties (SP) of mixed rice husk ash. Concrete (RHAC). In this study, of RHAC was predicted using sophisticated machine learning methods (artificial neural networks, artificial neuro-fuzzy inference systems). Considering the published using leftover industrial and agricultural materials to make alkali-activated concrete (AAC), has a chance to significantly advance sustainability objectives. The construction business demands a building material that satisfies the necessary strength and other property standards as outlined in Experimental research was done on the effectiveness of a sustainable green concrete made of fly ash (FA), rice husk ash (RHA), and stone dust (SD) in place of some of the cement and sand. FA and RHA are naturally quite pozzolanic, contain a lot of silica, and have a lot of surface area. These by-products exhibit filler effects that increase the density of concrete. The results demonstrated that the FA and RHA ingredients efficiently build strength at a young age of concrete and have good hydration behavior. Concrete may be made stronger in compression and bending by using SD as a stress-transfer medium within the concrete. As a result, sustainable concrete's capacity to absorb water was less than that of regular concrete. However, a slight loss of strength.

**Keywords**— Rice Husk Ash. Concrete (RHAC), Strength Properties (SP), Alkali-Activated Concrete (AAC), Stone Dust (SD), Fly Ash (FA)

## I. INTRODUCTION

The goal of this study is to put it to good use. Rice Husk Ash (RHA), a regional supplement, has been discovered to be extremely pozzolanic in a positive the high expense of structural repairs concrete. [1] How to get rid of rice husk ash (RHA), an agricultural waste product, is a concern. Issue for garbage managers. Today, concrete has surpassed all other construction materials in terms of global consumption. The binder (cement) is the most expensive component of concrete; thus, replacing it in part with a more natural, inexpensive local substance like RHA would not only address the issue of waste management but also lower the issue of the high cost of concrete and Housing. The binder (cement) is the most expensive component of concrete; thus, replacing it in part with a more natural, inexpensive local substance like RHA would not only address the issue of waste management but also lower the issue of the high cost of concrete and Housing. The significance is rising. The rise in emissions of greenhouse gases (EHG) in the air is blamed for climate change. The equivalent of 54 rigatonis of in 2017, the total yearly GHG emissions were measured as carbon dioxide equivalents (CO<sub>2</sub>-

eq). [1,2] Due to the increasing growth of the construction sector, it is anticipated that both the consumption of concrete and the demand for cement will rise in the future. Due to economic and environmental factors, sustainable construction is progressively becoming more difficult. Due to the primary user of natural Resources being the construction industry, which generates a significant amount of garbage [1].

Concrete is a widely used building material that is expensive to produce since it needs a lot of different elements. Approximately 5% to 8% of the world's carbon dioxide emissions are produced. The concrete used by the building industry is used globally. Is enormous. The crucial component of concrete is cement, which is commonly used. The production of regular Portland cement (OPC) results in significant emissions that pollute the environment and produce large amounts of CO<sub>2</sub> gas [1]. By-products, including fly ash (FA), RHA are generated in huge quantities in India, and their waste handling contributes to environmental problems. Utilizing such a by-product as a partial substitute for OPC in concrete is one way to address this issue. Most of these byproducts were pozzolanic in character. You may get RHA by eating paddy rice. The yearly the melting of the Antarctic is a consequence of increased greenhouse gas (GHG) emissions. [3,4,5] Ice caps in the Arctic. Due to this, there are now serious environmental issues on Earth. The production of large amounts of GHG is required for the installation and development of structures, as well as for the manufacturing and transportation of building materials. Buildings in the member nations of the European Union use about 50% of the entire energy used over their life cycle, which entails construction, operation, and destruction, and contribute to roughly 50% of the CO<sub>2</sub> emissions in the environment. The demand for concrete in the construction industry is still rising.

A significant part of concrete that significantly increases GHG emissions is regular Portland cement (RPC). [7,8] OPC manufacturing causes around 5% to 8%. The high-performance cement (HPC) type called calcium aluminate-cement concrete is produced using calcium aluminate cement (CAC) as the primary binder material in the cement matrix (CACC). Additionally, the chemical makeup of CAC and regular Portland cement (OPC) differs in that CAC has a higher alumina concentration. And it has less silica than OPC does. Superior characteristics of CAC, such as its quick strength growth and strong fire resistance, make it ideal for use in environments where chemical resistance and refractoriness are required. Consequently, using CAC is a practical technique to increase fire resistance. Several elements, including the



## Crop Protection from Wild Animals

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### Abstract:

Nowadays, there are several fields in the form of crop yields all over the world. This project estimates any crop or animal-related issue in order to find the best possible solution. The attacks of wild animals on crops in agriculture are lowering agricultural yield. Animal attacks in agriculture are one of the most pressing problems we face today. The attacks by animals cause great suffering to farmers. While trying to evict animals from their homes, people have occasionally also perished. Due to deforestation and a lack of water resources in the forested areas, animals move into agricultural land. After addressing these issues, we came up with the following idea. Although India is one of the countries that is quickly urbanising, the majority of Indians (61%) still live in rural regions, making rural development crucial for the efficient growth of the nation. Rural areas also make up 46% of the country's total income. The vast majority of India's rural areas are plagued by a variety of issues that are preventing them from developing. This research paper's primary goal is to examine and comprehend the issues and difficulties that rural communities currently face, as well as to explore and outline the causes of these issues there. The people's living situations are being negatively impacted by these issues, which is a roadblock to expansion and improvement. This study aids in our comprehension of the factors contributing to rural regions' underdevelopment and directs us toward the government's necessary actions to raise citizens' quality of life and promote the development of the rural system as a whole. There are many obstacles in the way of rural areas developing, so it is important to research the issues in order to alert decision-makers, policy-makers, and planners to the concerns [1].

## I. INTRODUCTION

### 1.1 Introduction to instruments

A One type of computer system called Texas Instruments is primarily made to carry out several activities, including accessing, processing, storing, and controlling data in various electronics-based systems. Texas Instruments (TI) is a manufacturer and designer of analogue and digital semiconductor integrated circuits (ICs). TI creates and manufactures semiconductor solutions for analogue and digital embedded, application processing, and education technology in addition to analogue technologies, digital signal processing (DSP), and microcontroller (MCU) semiconductors [1].

Texas instruments' traits include: The following traits of an embedded

- a. **Speed (bytes/sec): Must be swift**
- b. **Low power dissipation: Power (watts)**
- c. **Size and Weight: As tiny as feasible and light in weight.**
- d. **Accuracy: Must be extremely accurate (%error)**
- e. **Flexibility: Accessibility and height flexibility • Reliability: Must be dependable for a long time.**

In order to be used for real-time applications, Texas Instruments must operate at a high rate of speed, consume very little power, and have a system size that is as tiny as is practical. Readings must also be accurate with a minimum amount of error. The system must be flexible enough to accommodate various scenarios. The following traits define an embedded system.

The main issues in many rural communities, according to a literature assessment, are poverty, illiteracy, unemployment, and Homelessness, crime, social ills, a reduced standard of living, a lack of amenities and services, and poor health. from India's last 20 years. The primary cause of out-migration from rural areas is that there is significant growth and development in cities and urban areas but not in rural communities. Metropolitan areas from rural ones. According to the World Bank, India's rural economy must expand for the country's economy to be robust. Being hampered by a number of issues, including unemployment, illiteracy, and a lack of basic facilities like hospitals, colleges, and schools, cleanliness, etc. Government entities execute numerous policies and activities with the primary goal of boost rural communities' well-being, yet some of these issues are either directly or indirectly to blame for the poor management of plans, strategies, and initiatives. If these issues are not appropriately treated, they worsen and completely impact the negatively affect the entire balance of the nation's development and the rural system

  
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## A Review on Vapour Absorption Solar Refrigeration System

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### Abstract

An up-to-date overview of various technologies which are existing to provide refrigeration from the solar energy is provided. This review covers some evolving technologies in the field of solar absorption refrigeration. Solar thermal systems include thermos-mechanical, absorption, adsorption technology. Comparisons between different refrigerants are made in terms of both efficiency of the energy and feasibility of the economic. Solar electrical and thermo-mechanical systems appear to be more expensive than thermal absorption systems. The total cost of the NH<sub>3</sub>-H<sub>2</sub>O water absorption system is estimated to be less expensive than the Li-Br. Solar Vapor absorption systems use a source of heat to facilitate cooling, distinct from vapor compression systems. The two LPG absorption chillers use a generator attached to the heating element and it operates at single system pressure which doesn't exist any moving parts such as pumps or compressors. This paper compared the performance of VARS used for refrigeration which is below ambient temperature. The most common NH<sub>3</sub>-H<sub>2</sub>O solution vapor absorption refrigeration system uses H<sub>2</sub>O as the absorbent and NH<sub>3</sub> as the refrigerant.

### Introduction

Sun is the main source for energy generated by water, fossil fuels and wind. Solar energy is the energy which does not go extinct. Refrigeration and space cooling are both high-energy processes. Preservation demands in cold temperature in various areas are highest in the time of daylight, when the demand for solar energy is widespread; this is especially true during the hot season. Most of the state in India receives plenty of sunlight during the entire year. Therefore the Solar refrigeration is the most applicable technology for India, specifically given the rapid increase in the requirement for energy and the scarcity of electrical power. Cooling is projected to consume approximately 35K MW of electricity for many different applications. Part of these energies are produced by the power plants in zones where electrical energy is readily obtainable, while the remainder is generated by Diesel Generator, which will consume a significant amount of highly supported diesel which results in air, noise and high CO<sub>2</sub> emissions[1].

A solar-powered system is the one that runs on electrical power generated with the help of sun. Solar-powered cooling systems can keep consumable goods like dairy and meat, cool in hot climatic conditions. Solar refrigerators are most usually used in countries which are developed to help eradicate poverty, to reduce climate change. Plug in refrigeration device with backup diesel generators safely stores vaccine in the developed countries, but in countries which are developing, where electric supplies can be unpredictable, alternate refrigeration technology is required [2].

### Methods of solar refrigeration

Three ways in which solar energy can be cast-off for preservation are: the solar thermal, solar mechanical, and solar electric methods.

#### Electric Method by using Solar

Sunlight is straight away rehabilitated to DC current via array of solar cell identified as a Photovoltaic panel in the Solar Electric Method. Photovoltaic Cells are semiconductors that convert direct current from solar energy. The generated electric current is deposited in a lead acid battery, although the remaining powers the refrigerator's compressor. This Direct current can either be used to power the compressor's DC motor or converted to AC current and used to power the compressor via an inverter. To stabilise and level the current, a solar controller comprised of capacitors, sensor, and other components might be required. A typical Solar PV system is made up of several parts that are selected created on the structure type, position, and submissions. A charge director, inverter, battery-operated, secondary energy bases, and loads are the main components of a solar Photovoltaic system. PV which will convert the sunlight into direct current. Controls the current and voltage flowing from the PV panel to the battery, preventing overcharging and it will extend battery life. Inverter is a device that will convert the direct current output of the photovoltaic panels to alternating current which can then be used by AC purposes or nourished back into the power grid. A battery is a device that stores energy in order to power electrical appliances later on. Loads include lights, radios, televisions, computers, refrigerators, and other electrical appliances connected to a solar Photovoltaic organization.

  
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## A review on Automation in Hydroponics

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**Abstract** - Space has always been the big problem for those who live in urban areas. "HYDROPONICS" is the growing of plants in a liquid nutrient solution with or without the use of artificial media. The objective is to identify hydroponic system for those who are living in an apartment in an urban area. Living in apartments have limited space to do farming activities. to help people so that they can farm in a small area and have limited space in the urban areas. Apart from that continuous use of traditional farming practices with conventional tillage and burning off the crop residues has reduced the soil resource base and intensified soil degradation with decrease in crop production capacity. also, escalating fuel, fertilizers and other input costs; necessitates the effective use of resources in agriculture. In Hydroponics, there is a challenge of precision agriculture, especially for some sensitive plants, e.g., Coriander and lettuce. These kinds of plants need a precise amount of nutrient and water every time to grow ideally. Internet-of-Things (IoT) is a technology that enables regular monitoring of every aspect of human life. By the use of these technologies, we can easily control the nutrients required for the plants to grow.

**Key Words:** Internet-of-things, Hydroponics, Nutrients.

### 1. INTRODUCTION

Agriculture is the most critical sector in India. With the increasing population every year, the food availability is a necessity that must always be achieved by the agricultural industry. However, with the increasing development, a lot of agricultural lands is converted for uses such as the construction of housing complexes, industrial estates, trade zones and public facilities which will undoubtedly have a negative economic, social and environmental impact. This agricultural land reduction will certainly also cause a decline in agricultural production capacity, thus making the government have to import agricultural products to meet domestic food needs. Agricultural technology is proliferating in urban areas now. One solution that can be done by the community is to develop an agricultural system that can be done with limited land availability or commonly called urban farming or urban agriculture. Urban farming or urban agriculture is one of the practical solutions to overcome the reduction of agricultural land. Urban agriculture uses land that is not used in urban areas, such as roofs, balconies, patios, even on walls of buildings. One of the agricultural techniques used in urban farming is hydroponics. Methods using hydroponics is one of the possible ways to be able to do agriculture even without agricultural land. Hydroponics

comes from Greece, hydro means water, and ponies means work. Based on the problems above, one of the researchers tried to solve this by combining hydroponic methods, and IoT technology, and 'fuzzy' logic to make a smart controlling that can automatically control plants nutrition's and water needs. By utilizing internet of things (IOT) technology, the sensor device can communicate and send data to a cloud server to be processed and monitored in real time scenario. Each sensor is connected to Arduino board to control plant needs automatically by using fuzzy logic technology so that the control system will automatically add nutrients to the plant. The results of processing data from

### 2. History

The Greek words "hydro" (which means water) and "ponos," which means labor, are the origin of the name "hydroponics." This phrase was first used in 1929 by Dr. Gericke, a professor from California who was developing what had previously been a lab technique into a practical way to cultivate plants. During World War II, the U.S. Army used hydroponic culture to grow fresh food for troops stationed on barren Pacific islands. Commercially successful farms existed in America, Europe, Africa, and Asia by the 1950s.

### 3. Benefits of hydroponics include:

- (1) Crops grown hydroponically have a high yield and are free from disease, weed infestation, and soil-borne insects and pests.
- (2) Food grown in soilless cultures is organic, and no dangerous toxics or pesticides are used.
- (3) Gardening requires less room since plants with short roots can be cultivated near to one another.
- (4) Crops grown in hydroponic systems grow twice as quickly and produce twice as much, allowing for increased productivity in the same amount of space.
- (5) There is no water waste because the process only applies 1/20th as much water to the crops as conventional farming does.
- (6) Demands less work.
- (7) Crops can be cultivated without concern for the varying seasons.



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# Unbalanced Voltage Impacts and its Analysis on an Induction Motor

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## ABSTRACT

Lacks like unequal voltages in the voltage source could bring about issues like extreme misfortunes, overvoltage mechanical motions, and impedance with control hardware. Recognizing these unique machine situations is crucial in the electrical machine's collaboration with the power matrix. This investigation studied the influence of unequal voltages on motor execution. Then, at that point, checking this unfortunate condition utilizing electrical machine boundaries is done. For this situation, the motor itself can go about as the sensor that distinguishes unusual circumstances. Furthermore, this paper studies the detrimental impacts of uneven This represents a sinusoidal voltage which is frequently seen in power supplies voltage, on acceptance motor presentation in terms of line flows, power element, and proficiency.

**Keywords-** Unbalanced voltage, Induction motor, Derating Curve.

## 1. INTRODUCTION

Induction motors are frequently employed in commercial and industrial settings. Ventures incorporate vehicle and semiconductor fabricating plants, emergency clinics, broadcasting offices, and so on. Uneven stock voltage makes unfriendly impacts on the electrical mechanical assemblies particularly the electrical motors. Asymmetrical transformer winding, unbalanced loads, or huge single- stage loads can all create voltage unbalance. Albeit the voltage unbalances is little, huge uneven current streams because are of moderately little negative arrangement impedance. This high current produces overheating, further accidents, vibrations, auditory disturbance, a loss in force, and a decrease in the life of an induction motor [6, 7].

The effects of uneven voltage on induction motor torque, speed, and current when the voltage size, stage point, or both are modified at the same time are discussed in this paper. The NEMA, IEEE, and power local area networks have specified the voltage imbalance. One of the definitions is frequently used for the induction motor test, and they are all presented here. At this point when no less than one of the stockpile qualities (abundance as well as stage point) goes amiss from the guidelines, the electrical framework is impacted by the unbalance voltage [11].

The induction motor (IM) is broadly utilized in the industry since it gives great execution as well as high unwavering quality and solidness [1, 2]. IMs can be located in numerous applications which makes strenuous conditions. Working under these circumstances antagonistically influences IMs execution [3]. IMs shortcoming finding is vital, as it keeps away from sensational outcomes to the actual machine and to the general climate. The following are a some of the important flaws that can affect the operation of electrical machines:

(1) problems with the stator, caused by the opening or loosing of at least one turn; (2) unexpected affiliation of the stator windings; (3) broken rotor bars or broke rotor end-rings; (4) static or potentially strong air-hole impetuousness; (5) twisted shaft (similar to dynamic whimsy), which can cause serious damage to the stator core and windings; (6) shorted rotor field winding; and (7) failures with the headings and gearbox This essay focuses on the stator deficits, which are caused by a few various stressors and are primarily grouped into four categories. [5]

The legitimate utilization of the power by the induction motor as a framework to encounter burden prerequisites is always a subject of extreme interest [1]-[13]. Most modern motors have intended for 460 V activity, still, the utilization of the dissemination framework to intend for 480 V. So the reasoning over here is that the link voltage drop will permit the legitimate voltage of 460 V which is present at the motor load points. Estimations has appeared to be disregarding the link falls, the motor terminal voltages can be considerably more than the 460V in firm modern frameworks, while it could be well underneath the ostensible voltage, where the framework is vigorously stacked in powerless business

## 2. Losses in electric motor

By using the proper, similar circuit computations, the same stator and rotor flows and corresponding copper losses at each heap or slipknot are completely fixed. This contact and wind age losses which generally 1-2% of the evaluated output. The no heap primary losses are especially subject to quite a large number of highlights of the plan, yet an unpleasant normal 2-3% of the examined output is this number. In general, the rate of core losses decreases when the space openings, the ratio of the rotor to stator spaces, or the length of the air hole are reduced. A huge extent of this center malfunction and the wanderer load losses is J.



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# International Journal of Research Publication and Reviews

Journal homepage: [www.ijrpr.com](http://www.ijrpr.com) ISSN 2582-7421

## Problems Related to Rural Areas in Agriculture

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### Abstract:-

Although India is one of the countries that is quickly urbanising, the majority of Indians (61%) still live in rural regions, making rural development crucial for the efficient growth of the nation. Rural areas also make up 46% of the country's total income. The vast majority of India's rural areas are plagued by a variety of issues that are preventing them from developing. This research paper's primary goal is to examine and comprehend the issues and difficulties that rural communities currently face, as well as to explore and outline the causes of these issues there. The people's living situations are being negatively impacted by these issues, which as a roadblock to expansion and improvement. This study aids in our comprehension of the factors contributing to rural regions' underdevelopment and directs us toward the government's necessary actions to raise citizens' quality of life and promote the development of the rural system as a whole. There are many obstacles in the way of rural areas developing, so it is important to research the issues in order to alert decision-makers, policy-makers, and planners to the concerns.

### I. INTRODUCTION

Generally speaking, a rural area or countryside is a region outside of towns and cities with few conveniences, such as services and utilities "all people, homes, and land that are not part of an urban area. Anything not urban is regarded as rural "(US HHS) Rural areas are typically defined as areas with a population of between 3 and 6 cities and less than 49,000. Small villages and a low population density characterise rural areas (RBI).

Rural areas in India, where about 70% of the population resides, are important for the economy of the nation. In rural areas, a sizable section of the population relies on agriculture as their primary source of income. Even though different countries have different definitions of rural for statistical and administrative purposes, all of these rural areas are equally important for the sustainable development of the nation, and the development of the rural system should be taken into consideration as part of the nation's development. People in these areas, however, are plagued by a variety of problems as a result of a lack of care for the rural system's expansion, and the rural system of the country is progressively getting more and more weakened. The implementation of policies and development projects must give rural areas more consideration.

The main issues in many rural communities, according to a literature assessment, are poverty, illiteracy, unemployment, and Homelessness, crime, social ills, a reduced standard of living, a lack of amenities and services, and poor health. from India's last 20 years. The primary cause of out-migration from rural areas is that there is significant growth and development in cities and urban areas but not in rural communities. Metropolitan areas from rural ones. According to the World Bank, India's rural economy must expand for the country's economy to be robust. Being hampered by a number of issues, including unemployment, illiteracy, and a lack of basic facilities like hospitals, colleges, and schools, cleanliness, etc. Government entities execute numerous policies and activities with the primary goal of boost rural communities' well-being, yet some of these issues are either directly or indirectly to blame for the poor management of plans, strategies, and initiatives. If these issues are not appropriately treated, they worsen and completely impact the negatively affect the entire balance of the nation's development and the rural system.

This review study primarily intends to analyse the issues facing rural areas, which may be divided into four primary categories: Humans, agriculture, infrastructure, economy, management, and leadership These issues lead to inferences about why the planning and development of rural areas, these issues must be taken into consideration.

### II. AGRICULTURE-RELATED PROBLEMS

India is mostly a rural nation; 68.8% of the population and 74% of the labour force both resided there (2011 Census). The country's rural population, workforce, and GDP are all declining as a result of a continuous shift toward urbanisation over the years. Between 2001 and 2011, India's population grew by 31.8 percent (urban) and 12.18 percent (rural). Rural-urban migration and repopulation were responsible for 50% of the rise in the urban population during this time. Rural communities are categorised as urban. According to population projections, India will remain largely rural till the year 2050 when it is predicted that urban populations will surpass those in rural areas (UN).

  
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