

IMPACT OF LARGE POPULATION IN AGRICULTURE SECTOR

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Abstract

This rapid growth of population was primarily fueled by a declining death rate (which was faster than the birth rate), as well as a rise in average human age. Poverty is widely regarded as the primary cause of population growth. Every major advancement in agriculture has resulted in an increase in the global population. Agriculture, the ability to effectively clear huge areas of land for farming, and the production of fossil-fuel-powered farm machinery enabled farmers to increase more food and convey it to where it was required. In this review paper, the author discussed the reasons behind the less agriculture due to the large population and how large population affects the agriculture day by day. Robots, temperature and moisture sensors, aerial photographs, and Global Positioning System (GPS) technology can all be used in the future of agriculture. Farms would be more productive, effective, secure, and environmentally friendly as a result of these advanced devices, precision agriculture, and robotic systems.

Key words: Agriculture, Farmers, Population, Productivity, Rural

Introduction

The agriculture area is the backbone of the Indian economy, accounting for about 15 percent of the national Gross Domestic Product (GDP). More specifically, about the half of Indian population is entirely or partially reliant on the agriculture & related accomplishments for their maintenance. The aim of this review paper is to improve the agriculture area in order to achieve long-term economic and human growth[1]. Agriculture development would benefit not only farmers, but also a significant portion of the rural poverty which is directly involved in agriculture or indirectly connected to agriculture as consumers. The more conjugative climate in the country for the growth of economy and the rural populations in particular which created by more efficient production methods, stabilized markets, and higher agricultural income[2].

The urban population grows as the rural population shrinks as a result of population movements. This lowers labour productivity in agricultural areas, causing them to go dormant, and increases the effect of urban growth on them. As a result, efforts were made to secure these areas in sequence to decrease the impact of urban development on natural and agricultural areas. However, since housing is a basic human need, these efforts were ineffective in reducing the burden of the urban growth on rural area[3]. The safeguarded land-usage strategy, but population changes endure to pose a challenge to these planning methods. As the overall population demand endures to quintessence in & around towns, urban agricultural region will shrink. The importance of increasing urban area in countries where the majority of the population is migrating and city land-use growth is expected to increase. Figure 1 shows the three images a) population, b) agriculture and c) industries.



Figure 1: In This Shows the Three Different Types: a) It Shows the Population Image, b) It Shows the Agriculture Image and c) It Shows the Industry's Image

For better understanding the impact of urban growth on the urban agriculture & to produce planning approaches from dissimilar points of views towards the developed and emerging cities, it is necessary to examine the relationship between urban development and population in urban agricultural areas. The aim of this research is to learn more about the state of the urban agriculture in emerging cities & the obligatory development planning. This research examines the role of population in deciding which areas are experiencing population growth & are under stress. The environmental impression of agriculture refers to the impact that various agricultural practises have on the environments in which they operate, as well as how those effects can be linked to those practises. Agriculture's environmental impacts varies greatly depending on the activities used by farmers and the size at which they operate. Sustainable agriculture practises would be adopted by farming groups who try to mitigate environmental impacts by changing their practises. Although some forms of pastoralism are environmentally friendly, modern animal agriculture practises are more harmful to the environment than agricultural practises that focus on fruits, vegetables, and other biomass[4].

Experts use two types of metrics when assessing environmental effects: "means-based," in which it is depend on the farmer's production techniques, & "effect-based," which is based on the impact of farming method on the farming systems or on pollution to the atmosphere. The consistency of groundwater, which is influenced by the quantity of nitrogen added to the soils, is an example of a means-based indicator. Effect-based indicators will show the loss of nitrate to groundwater. Agriculture has an environmental effect on a number of factors, including land, water, climate, animal, soil diversity, humans, plants, & food itself[5]. Climate change, habitat destruction, deforestation, dead zones, irrigation issues, genetic engineering, pollutant, soil erosion, and waste are only a few of the broader environmental problem that agriculture leads. Since agriculture is important for the global social and environmental structures, the international community has pledged to improve food production sustainability which is the part of Sustainable Development: Food Security. "End the hunger, ensure food security, and improve nutrition of the food which is taken by human being". Figure 2 shows the future of farming in different countries.

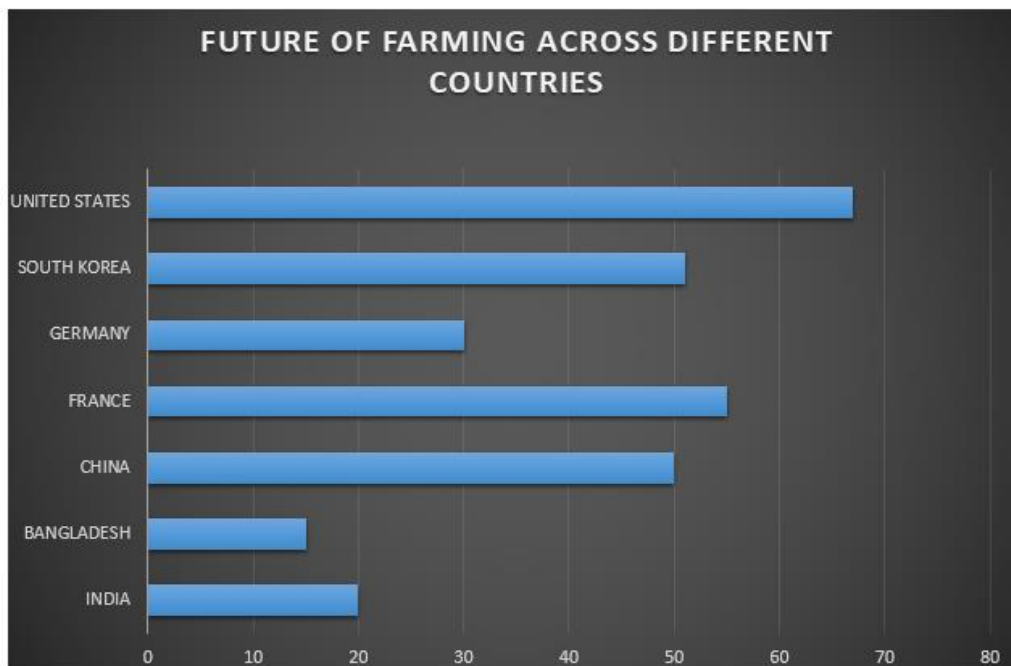


Figure 2: This Graph Shows the Future of Farming across Different Countries and How It Will Affect by the Population

Marginal and small farmers will be empowered through education, growth and reforms, resulting in a better, more productive, and stronger Indian agriculture. Fresh production & marketing models, as well as raising awareness & providing education for the small farmers, would aid in the sector growth and, more prominently, improve the economic position of poor farmers[6]. Domestic reforms, such as reduced government involvement in market economy but a greater role as implementer and evaluator of policies, enlarged investment and prioritization of areas to invest, and parallel action plan in this directions are required in investigation to increase the productivity, irrigation & water organization in India.

- Manufacturing and services sectors have increased their contributions to economic growth in recent years, while agriculture's contributions has declined from more than 50 percent of (GDP) in 1950s is 15.4 percent which is still constant in 2019-20.
- Every year, India's food grain production rises, and the country ranks among the world's top producers of wheat, pulses, rice, cotton and sugarcane. It produces the most milk and is the 2nd largest producer of vegetables and fruits.
- In 2013, India produced 25 percent of the world pulses, the highest from any different countries, 22 percent of rice, & 13 percent of wheat. It also accounted for about a quarter of the total amount of cotton grown, as well as being the second-largest cotton exporter for several years.
- Continued dependency on monsoons, inadequate access of irrigation, unbalanced use of soil nutrients that result in soil fertility loss, uneven access of the state-of-the-art technology of several part of the country, poor entrée to the formal agricultural loans, limited obtaining of food grain are all important issues which affect agricultural productivity.
- Over the years, the committees and expert bodies make recommendations to introduce legislation on farmland lease, transfer to micro-irrigation technology to improve water efficiency, improve access to quality seeds through engagement with the private sector, and introduce the national farming market to allow online trade of agricultural goods.

1. State of Agriculture:

The productivity of agriculture depends on a number of factors. These include access and quality of agricultural inputs, such as soil, water, seeds and fertilizers, access to agricultural, insurance of agricultural products for remuneration and stockpiling and marketing infrastructures, among others. This report gives an overview of the agricultural situation in India. Factors relating to agricultural production and post-harvest activities are discussed[7]. From the environmental and energy crisis point of view, the population control programme is also essential. If this issue is not given so much importance, it could have dangerous consequences. Many additional factors, including a lack of education and health facilities, jobs, unemployment and the associated socio-economic problems, are also directly or indirectly linked to overpopulation. Many young men and women don't get work according to their requirements, so they either feel disgusted or engage in activities like anti-social activity and become drug dealers. Figure 3 shows the agriculture analytic across with the different countries.

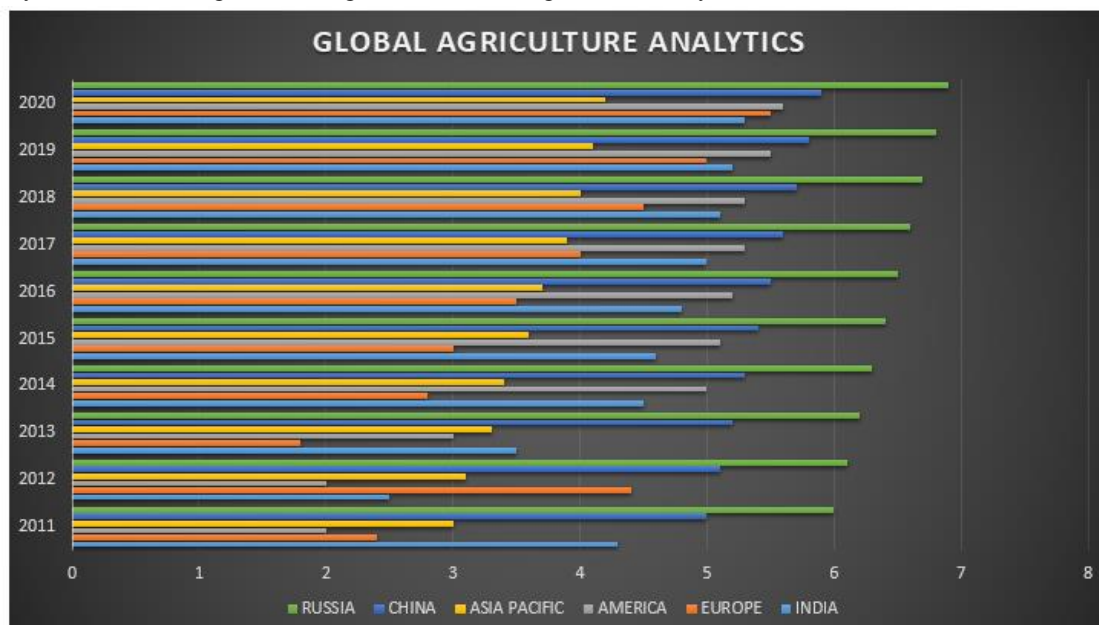


Figure 3: This Graph Shows the Global Analytic Impact of Agriculture

Overcrowding is also associated with global warming. The population must be controlled to control global warming. The population grow, demand for energy consumption, like electricity, cars and different energy resources, grows and affects nature in turn. Many of the world's countries are responsible for global warming, which mainly generates greenhouse gas emissions from the transport, industry and power plants. We should all

know that as the population grows, the places become smaller and smaller. Locations which once had a lovely countryside have become mega housing complexes to accommodate the growing number of people. Education is also influenced by the population[8]. Sitting shortages are limited in colleges and universities and many parents pay more than two children's education costs.

India is in the midst of a severe resource shortage. The fierce rivalry for the country's scarce natural resources has resulted in disputes between states, communities, or even families. Our land and water resources are being abused to the point of exhaustion. Exploitation of natural resources endangers forests, nature reserves, and the environment. The 70% of energy resources must be imported, placing relentless pressure on us to export more or risk currency depreciation. Natural disasters are happening more often and with greater devastation as a result of resource overuse.

Many Indians struggle to bring together the basic necessities for survival, and resource shortages disproportionately affect the poor and underprivileged. Even as parts of India's lower middle class struggle with scarcity, the poor and marginalized are the ones who bear the brunt of the consequences. It is a well-known fact that poverty is the greatest curse on the lives of millions of Indians[9]. They have moved to towns and cities in search of a better life, but they now live in the most deplorable of living conditions, with no respect for basic hygiene and cleanliness. Resources, as well as knowledge of good living behaviors, are woefully lacking.

2. Population Pressure on Land and Agricultural Resources (Global Context):

In certain areas of the world, population growth has a negative impact on agricultural resources, as excessive population growth will dramatically reduce agricultural land worldwide. According to reports, agricultural land used to extract food and cereals accounts for just 12% of the world's total land areas, which do not appear to be adequate to meet the needs of like a large population. The residual 24% is arid grassland used for pasturing and grazing, and the remaining 30% is protected by woodland, which is needed to defend the ecosystem from the greenhouse effects & different climatological imbalances. Since it is too steep, stony and exposed to excessively cold, dry and rainy weather conditions, the remaining 34 percent of the world's total land area is completely impracticable for crop productions. These land are simply infertile geologically, impracticable as pasture land, and the climatically inappropriate for crops production[10].

As a result, it stands to reason that as our population continues to increase at an unsustainable pace, it will place increasing pressure on the 12 percent of usable agricultural land that is available, which is also diminishing day by day. The supply of cultivable land per capita is also being squeezed by rapid population growth. Based on data, it is estimated that we currently need 0.5 hectares of crop land per capita to maintain a healthy diet and nutrition. However, as a result of continuous population growth and rapid land depletion, per capita land supply is dwindling day by day. Figure 4 shows the global impact of land and land used for different purpose.

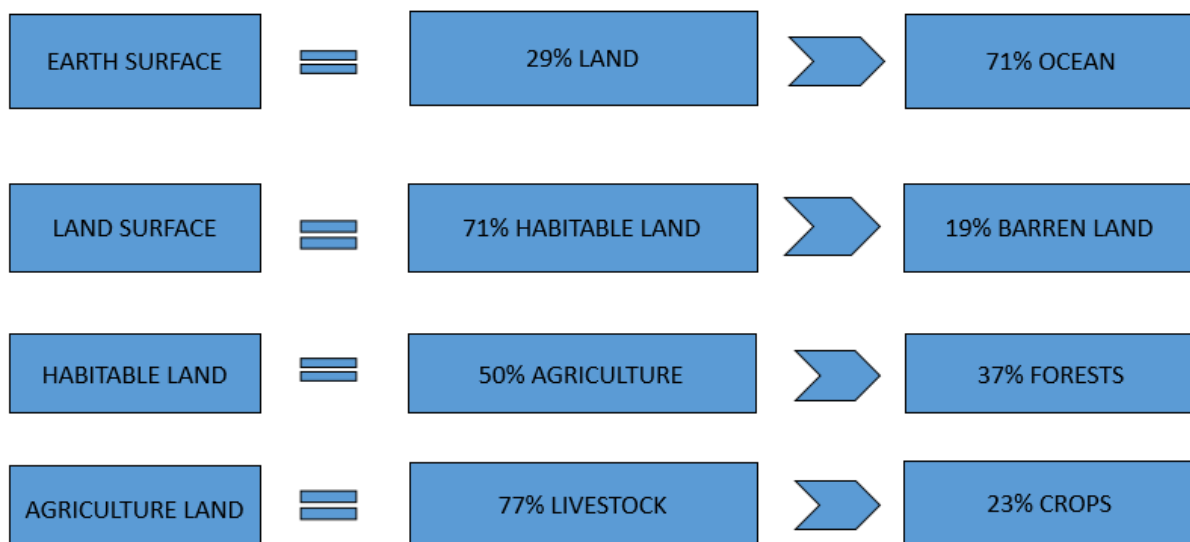


Figure 4: This Diagram Shows the Global Land Used For the Different Purpose

Humans recognize that land and its terrestrial ecosystem are vital natural resources that provide 99 percent of human food needs. As a result, when this land is threatened by population growth, farmers are likely to need to usage the common land recurrently through the intensive multi-cropping development[11]. Farmers must use

mechanical farming and create a drastic change from their conventional original farming method when they go for intensive cultivation. Mechanized farming allows for a significant increase in crop manufacture, which is necessary to feed an increasing populations.

In the past, traditional existence farming in Africa and Asia involved mono-cropping or rotating cultivation, with the land being left unseeded for a period of time, which enabled the terrestrial to be invigorated and recover its nutrient[12]. However, as the populations grows, peoples continue to put constant compression on land, denying them any respite. As a result of the degradation of the soil, the land is fully reliant on chemical fertilizers and unregulated irrigation. As a result, peasants who adopt mechanical farming are no longer reliant on the seasonal rain & are therefore cut off from traditional farming mechanisms. Crop production rises as a result of mechanized farming, but a complementary notion emerges as people become less concerned about population reduction.

Discussion

When the population grows, the demand for housing and services will be increasing day by day. This raises the cost of land, making it unaffordable for farmers. Farmers, on the other hand, can't always afford to keep their agriculture field. When it comes to skyrocketing property prices, it all depends on the side of the fence you're on. Farmers and ranchers, on the other hand, will remain on the land and keep it productive for future generations. Farmers and ranchers can do so through land trusts and conservation easements with financial benefits. Texas is still a rural state, but it is becoming increasingly urban. For rural areas this is both an opportunity and a challenge. Farmers will be able to communicate with customers like you and me, but it will also result in the loss of working lands and natural resources in our state[13]. To practise modern agriculture, humans need private land for the farmers and ranchers. The land, and the people who work on it, are responsible for growing our food, conserving water, and protecting wildlife habitat. In agriculture, humans have a strong desire to preserve private land. Farmers and ranchers must be able to stay on the property. Since it is beneficial to both the land and the state of Texas.

1. Agricultural Condition in India:

Agriculture is one of the country's main economic concerns, as it is the sector that provides a living for approximately 54 percent of Indians. Even today, this sector is underdeveloped and plagued by numerous issues, resulting in low crop productivity. While farming occupies 43 percent of India's soil, it only accounts for 18 % of the country GDP. For Indians, the country's weak agricultural situation is a source of concern. Rural farmers in India are poor, and the majority of them are illiterate, so there are few good extension services available. Another big issue confronting Indian farmers is their reliance on nature and the state of their irrigation system. Current agricultural practises are neither economically nor environmentally friendly, & India's agricultural yields are poor for several commodities[14]. Irrigation schemes that aren't well managed and a virtually universal absence of worthy extension facilities are among the causes.

Poor roads from the village to the markets, rudimentary markets infrastructure, & the excessive regulations are just a few of the different concerns for India's agriculture sector. Rapid urbanization has the potential to kill natural and agriculture areas. Controlling this growth is critical; however, several cities have been built without captivating this into account. Many examples of this condition can be found in the history of industrialization and urban growth. Population migration is the most important element. Agricultural and natural areas are targeted as growth areas in cities with growing population density. The urban population grows as the rural population shrinks as a result of population movements. This lowers labour productivity in agricultural areas, causing them to go dormant, and increases the effect of urban growth on them.

As a result, efforts were made to secure these areas in order to reduce the impact of urban development on natural and agriculture regions. However, since housing is a basic human need, these efforts were ineffective in reducing the burden of an urban development on the rural areas. Human safeguarded land-utilizing planning, but population's changes continue to pose a challenge to these planning methods. If the global population continues to distillate in & around cities, urban agricultural areas will be reduced. The importance of increasing urban regions in countries where the majority of the population is migrating and urban land-use growth is expected to increase. Figure 5 shows the impact of population on agriculture.

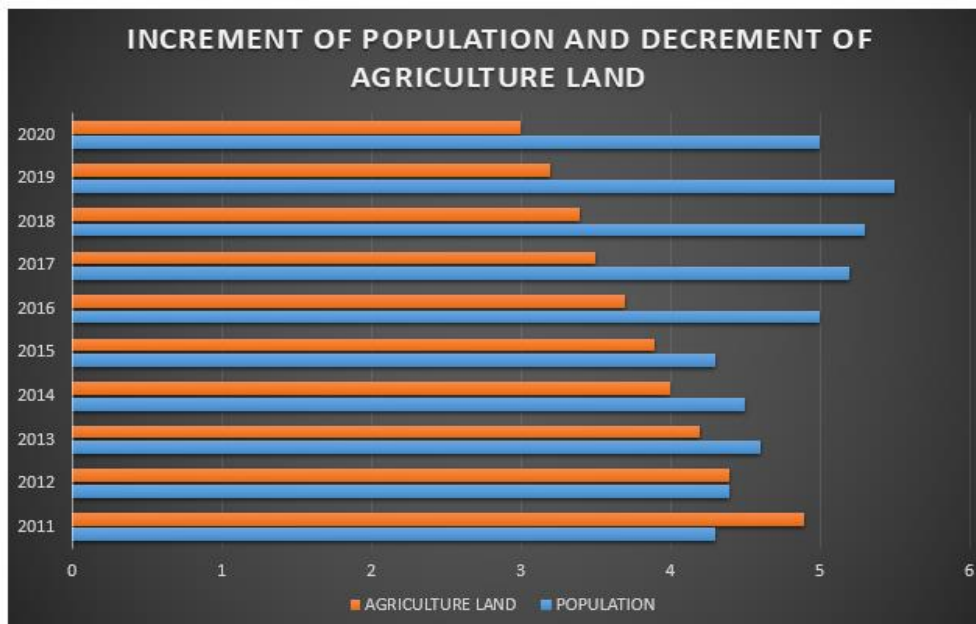


Figure 5: This Graph Shows the Increment of Population and Decrement of Agriculture Land

The ultimate conclusion of this investigation is that higher rural population density makes it impossible for farmers to sustainably increase staple crop productions. Increases in the population density are linked to farm closures, according to our findings. Furthermore, we discover that the use of fertilizer rises as the population grows. When the land becomes more available to others, there is an increase in tenure uncertainty. They are concerned about their potential tenure situation because of the facilities.

For planners and all other stakeholders, the future of agriculture is a very important matter. Government and additional organizations are tiresome to address key challenges to agriculture in India, containing small farmers' holdings, secondary and primary processing, the supply chain, structure supporting resource efficiency and marketing, and reducing market intermediaries. The work on cost-effective technologies to protect the environment and to conserve our natural resources is necessary. In addition, the information technology (IT) insurrection in India, new agriculture technologies, private investment in development and research, government effort to invigorate the obliging crusade to address small-scale farms and the small-scale products etc. are altering the face of agriculture in India.

Several highly educated young start-ups in agriculture demonstrate their understanding of the high probability of putting efforts and money in this sector. In the next decade, the cumulative effects of technology will change agriculture's face. Soil and weather conditions favorable, untapped opportunities, high demand for food, and several fiscal incentives provided by the government for input, production infrastructure, export and marketing promotion are enticing many individuals, large companies, entrepreneurial and startups ventures to invest heavily in innovations, inventions, and research and development. Many of agriculture's problems are being converted into chances, and this transformation is the upcoming of agriculture.

Conclusion

Agriculture's strengthening would benefit not only farmers, but also a significant portion of the rural areas in which poor population were living who are directly involved in agriculture and indirectly connected to agriculture as customers. The more conjugative climate in the country for the growth of the country economy as a complete and of the rural populations in particular will be created by more efficient production methods, stabilized markets, and higher agricultural income. The most critical aspects of the much-wanted reform is not only the timely enactment of policies, but also the simultaneous analysis and assessment of the policies' impact, as well as immediate action to correct any negative effects caused by any of the policies. The agricultural sector's inter-sectorial linkages and organization must be pursued. Another important topic is sustainability. The importance of sustainability in natural resource management has increased in recent years.

Government policies should also promote visible structural improvements such as new marketing and cultivation models. The stated priority investment areas must be focused on as soon as possible. Farmers would be motivated to practise productive agriculture by risk management and incentive-based systems. Marginal and

small farmers will be empowered through reforms, education and growth, resulting in a better, more productive, and stronger Indian agriculture. The new marketing and production models, as well as raising awareness & providing education to the small farmers, would aid in this sector's growth and, much importantly, improve the economic position of poor farmers. Domestic reforms, such as reduced government interference in the marketplace economy but a greater role as assessor and implementer of policies, enlarged investment and prioritization of the areas to invest, and parallel action plan in these directions are needed in investigation to rise productivity, irrigation & water organization in India.

However, based on the aforementioned contention, the author makes a definitive point below for peasants all over the world in terms of their farmland pattern over time, noting that we should find a mechanism for dealing with such a large number of rapidly rising populations at this crucial time. A first recommendation is that every and each country in the world immediately devise its own strategies with the aim of bringing population growth to replacement levels while also developing techniques to address the global food crisis.

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