A Geographical Study of Vindhyanchal in Mirzapur City, U.P. India

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Vindhyanchal is a very famous pilgrimage and tourism site in the west of Mirzapur city, Uttar Pradesh State, India. The main city in east is a commercial centre for cotton, metal ware and carpets. Among the Hindu population, it is believed that the primordial creative forces of the GOD and the power of the GODDESS make respective triangles which superimpose opposite to each other as hexagram at a point or node (*Bindu* (point) +*Vasini* (located) or Vindhyavasini, located in a point/node) in Vindhyanchal. The region has served as a natural connecting point between north and south India. Before independence of India from Britain in 1947, it was a flourishing commercial centre. Post-Independence, the negligence of planning authorities and nexus of bureaucrats and politicians started affecting its development. In the meantime, emergence of new industrial cities as Kanpur, Agra, Moradabad, etc., nearer to the capital city of Delhi, posed serious challenges to the development of this small city as many commercial and business activities along with the skilled workforce started shifting to these new cities or to the relatively bigger neighbouring cities of Varanasi in east and Allahabad in west. In the present paper, the significant causes, issues and challenges in development of

Vindhyanchal is discussed with geographical perspective. An attempt has been made to find out the ways to restore the lost glory of the city as a centre of pilgrimage, tourism and commerce.

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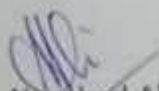
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Transformation of Infrastructure Facilities for Urban Development of Mirzapur City

Introduction

Sustainable urban environment of a city requires good living environment with provision of physical infrastructure, clean air and water, power, management of sewerage, drainage and solid waste and other civic facilities and amenities. It reflects the quality of life in the urban community. The national development plan can't be successful without incorporating a sustainable urban development plan in it, as two-thirds of the national economy is contributed by the urban sector. In India, large cities are the focus of urban policies and programmes (Mahadevia 1999), though poverty is concentrated in the small towns (Dubey and Gangopadhyay 1999), which also have lower levels of basic services than the large cities. The larger cities very easily get integrated into the global system and the smaller towns into the local economy, with no continuum between the two (Kundu 1999). Therefore, it is important to focus on the development of the small cities like Mirzapur. The city has long histogenesis and famous as the cultural node of Vindhyanchal as well as trade and commerce of carpets and metal ware.

Statement of the problem

The city faces the problems in the form of poor infrastructures, overcrowding, traffic congestions, environmental pollution, and urban resource mismanagement. The civic authorities have failed to formulate and implement plans for urban renewal and development in time. Public Works Department (PWD), Town Planning Department, Mirzapur Municipal Board (MMB), Jal Kal (Water Board) and Mirzapur-Vindhyanchal Development Authority (MVDA) lack coordination which aggravates the planning problems.

An Appraisal of Urban Land Use and Planning of Mirzapur City

Akhilendra Nath Tiwary, G.N. Singh and P.R. Sharma

Cities are dynamic spatial unit of the people, their activities and the institutions. The urban land is a base for the development of the modern society. The land resource is fixed, while the human population is increasing day by day. The occupancy of the land by man changes dynamically in space and time. This requires a scientific study of the land use related to their types, intensities and concentrations. Mirzapur city, which is situated on the southern bank of river Ganga in Eastern Uttar Pradesh, is significant both historically and culturally since ancient times. The urban land use of the city has merged with a cultural hub around *Vindhyachal* in the west and a commercial hub around *Ghanta Ghar* (Clock Tower) in the east. This paper aims to study the land use and site to propose a model plan for the development of the city.

Key words : Urban land use, urban planning, land use planning, participatory planning, heritage city, commercial hub, urban models, urban structure.

Introduction

Urban Geography is studied with three dimensions—urban histogenesis and evolution, urban land use and morphology and urban planning (Sharma et al, 2005). This paper refers to the urban land use and planning of Mirzapur city (25°7'15"N – 25°11'15"N and 82°30'E – 82°35'30"E), which is situated on the southern bank of river Ganga in Eastern Uttar Pradesh (Fig. 1). Mirzapur City in its present form is the result of colonial period, although the *Vindhyan* region in the west has very long history since ancient times. The reference of *Vindhya* region

can be found in almost all the ancient Indian chronicles epics and literatures (Sharma and Tiwary, 2008).

Objectives

The study has been attempted with the following objectives:

(i) to study the present land use of the city,

(ii) to find out the problems which have hindered the urban development,

(iii) to propose a model plan of land use for its future development.

Data Base and Methodology

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CHALLENGES OF SUSTAINABLE LIVING ENVIRONMENT IN DAMATURU TOWN, YOBE STATE, NIGERIA

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ABSTRACT

Urban development of the world in last three decades is phenomenal. It has risen from less than 20% to more than 54% and likely to cross 75% by 2030. Today, majority of urban research are focused on big metros of developed countries, ignoring the fact that vast urban population live in small and medium cities of developing countries. Globalization has accelerated urbanization in the developing world, but at the cost of their living environment facing numerous challenges of sustainability viz; lack of basic amenities and facilities, health, education, poverty, environmental degradation, etc. The present study attempts to find out major challenges towards sustainable living environment of Damaturu town in Yobe State, Nigeria. Total number of 122 respondents were selected by systematic random sampling for questionnaire based survey in three sample wards of the town representing 10% of the total 1200 housing units. Personal interviews with the civil servants, lawyers, academicians, politicians and NGOs were also conducted for identification of major problems and challenges. The research finding recommends shifting the policy approach from centralized to bottom up with common people's participation based on their needs and demands. Community based development projects should focus on major areas of water, electricity, housing, drainage & sewerage and waste management for ensuring a sustainable living environment.
Keywords: Urbanization, people's participation, sustainable development goals

INTRODUCTION

Rapid urbanization of the world will cross urban population as more than 50% of the world population by next decade. In Africa, transformation of rural population in urbanising society with limited infrastructure amenities and facilities are posing considerable stress on living environment. The problems are aggravated with inadequate urban development plan. Africa's urban transition is partially accompanied by economic growth derived mainly from non-agricultural value-added, the growth is largely un-sustained, and far below the level required to significantly reduce poverty levels, as urban areas sprawl at the cities' peripheries, the core areas break down with the burden from increasing demand for social services, which consequently become homes of the poor, and the sites and sources of environmental pollution (Kessides, 2005). As the world's cities absorb tremendous growth in human population, housing and public services in these areas have not kept pace, particularly in less developed countries where overall population growth is more pronounced and urban crowding is most severe (Olalekan, 2014). Over 40% Nigerians now live in urban centres of varying sizes (Olotua and Bobadoye, 2009). The explosive rates of growth have

complicated and exacerbated inter-related problems of human settlements and environment, but have also greatly accelerated poverty (Oladunjoye, 2005). In 1931, 6.7 per cent of Nigerians lived in urban centres, that is settlements with populations of 20,000 and above. The proportion rose to 10.2 per cent in 1952, 19.2 per cent in 1963, 25.1% in 1972, 33% in 1984 and 42% in 1991 which was to reach 68% by 2020 (Onibokun, 1987a; 1989; 1990a). According to World Data Atlas (2017), the urban population has reached 48.16% of the total population in Nigeria. Nigeria as a developing country appear to be facing a more rapid rate of urbanization, mainly as a result of rural-urban migration. Mabogunje (2002) has written about today's Nigerian cities characterized by substandard and inadequate housing, slums, and lack of infrastructure, transportation problems, low productivity, poverty, crime and juvenile delinquency. Damaturu is a relatively new town serving as the capital of Yobe state which was carved out for Borno State in 1991. The rapid growth of Damaturu accompanied by desire for building spaces to meet the urgent need for residential, commercial and public buildings have undoubtedly led to unhealthy urban growth (Daura et al, 2010).

Development Studies in Geography: Concepts and Approaches

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Abstract: Development Studies originated from the field of economics, but today it has become highly

globalization and sustainable development. The purpose of the present paper is to provide a concise study material on concepts and approaches of development with geographical perspective for graduate students of Geography all over the world. They face many problems while choosing the study materials in limited time frame and different views of development based on the place of their origin or residence.

Key Words: *Sustainable development, take off, marshall plan, structuralism, radical, globalization*

CONCEPTS

Development is a process of overall growth and improvement of person, place or thing. It is often taken interchangeably with growth but the latter may go negative in absence of any institutional support or agency with some catalysm. Brookfield (1975) takes this stance when he defines development as "the whole process of change brought about by the creation and expansion of an interdependent world system" [1]. According to Todaro " Development is not purely an economic phenomenon but rather a multi-dimensional process involving reorganization and reorientation of entire economic and social system." Development is process of improving the quality of all human lives with three equally important aspects. These are:

> Raising peoples' living levels, i.e. incomes and consumption, levels of food, medical services, education through relevant growth processes,

> Creating conditions conducive to the growth of peoples' self-esteem through the establishment of social, political and economic systems and institutions which promote human dignity and respect.

> Increasing peoples' freedom to choose by enlarging the range of their choice variables, e.g. varieties of goods and services [2]

APPROACHES

Development Studies prior to the world war period was basically concerned about economic development theories. With the time, different approaches evolved expanding the scope to multiple disciplines and diverse areas of research. It can be understood under the following phases:

1.Classical Phase

Influenced from mercantile theories, Classical phase started in 18th Century and covered the longest time phase upto world war period of 1940s. Adam Smith, David Ricardo and John Stuart Mill, and the fourth, the unorthodox Robert Malthus were most significant contributors of this phase. They wrote specially about the theory of value, distribution theory and international trade. Karl Marx studied the same matters, although with different conclusions and defending the working class, which makes him a classical economist in the eyes of some historians. Thanks to these authors, the study of economics became more of a science, instead of just being some kind of philosophy[3]. The theories of the classical school, which dominated economic thinking in Great Britain until about 1870, focused on economic growth and economic freedom, stressing laissez-faire ideas and free competition. Many of the fundamental concepts and principles of classical economics were set forth in Adam Smith's An Inquiry into the Nature and Causes of the Wealth of Nations (1776). According to Smith, free competition and free trade would truely promote a nation's economic growth. The community benefits most when each of its members follow their self-interest. In a free economy, individuals make a profit by producing goods that other people are willing to buy. Individuals spend money for goods that they want or need most. Smith demonstrated competitive buying and selling transmuted into an orderly system of economic cooperation. This system evolves through the process of individual choice as opposed to central direction. Smith introduced the rudiments of a labour theory of value and a theory of distribution in analyzing the functions of free enterprises. Ricardo beautifully analysed in his Principles of Political Economy and Taxation (1817) that the value of goods produced

Problems and Prospects in Development of Non Renewable Energy Resources in Yobe State, Nigeria

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ABSTRACT: Nigeria has one of the lowest electricity generation per capita rate in the world resulting in shortage of power supply and heavy dependence on fossil fuels (79 % of total). At present, only 10% of rural households and 50% of the country's total population have access to national power grid electricity. Separate researches conducted by Energy Commission of Nigeria and Global Energy Network Institute (GENI) have concluded that 100% stable power supply from renewable energy is possible in Nigeria. Yobe State (relatively rural and under developed state) is located in North Eastern part of Nigeria with Damaturu as state capital. The capital itself is facing serious power crisis, not getting even an hour of electricity from the national power grid. In the present paper, the researcher tries to find out significant problems and future prospects for development of these resources in Yobe State. The region is highly under developed owing to lack of basic infrastructure facilities and political instability due to insurgency of Boko Haram (a terrorist group in north eastern Nigeria). The region is dry and windy which has good prospects of developing three renewable energy resources, i.e., solar, wind and biomass. The study tries to find out the viable means to harness these energy potential. Among the major challenges in adoption of these resources include, lack of political will, boko haram insurgency and finance. The collaboration of private players (mainly oil companies of southern Nigeria), international funding and aid agencies, both local and federal government and local people should come forward to adopt these renewable resources. For adoption of these alternative sources of energy, creating awareness and little training to local people is required.

Key Words: Alternative energy, Renewable energy resources, off grid electrification, solar, biomass

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GIS and Remote Sensing in Urban Development Planning: Issues and Challenges of Developing World

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Abstract: *Urban Planning involves objective or target based process adopted for sustainable urban development. It involves analyzing and predicting the urban environment quantitatively and qualitatively to identify and evaluate alternative policy options leading to a beautiful urban living environment. The quantitative increase in the number of urban centers and populations do not suffice the goal of planning [1]. In the developing countries in spite of the increase in the number of cities and the urban population, quality of urban life is sub standard. For a good quality of life in the cities, smart planning is required. Here GIS (Geographical Information System), GPS (Global Positioning System) and RS (Remote Sensing) come handy as necessary tools and techniques in urban development planning. The digital maps prepared with the help of such modern techniques are scale free. Thus, they can be superimposed to study physical, social, cultural and economic phenomena. The lack of capital and skilled human resource in the use of new technology of GIS, GPS and Remote Sensing in the developing or under developed world is making things difficult. All the softwares and hardwares required by them are imported from developed countries which are less user friendly and developing world is totally dependent on developed world for any technical assistance. An attempt has been in this research paper to discuss the issues and challenges encountered in adoption of the modern tool and techniques of GIS, GPS and Remote Sensing in better planning for the urban development in developing world.*

Keywords: Sustainable urban development, GIS (Geographical Information System), GPS (Global Positioning System), RS (Remote Sensing), urban planning, developing world

1. Introduction

Cities are nodal points for socio economic activities. They create job opportunities and other means of livelihood. In developed world, urban development rates are constant or decline due to regular settlement patterns and relatively stable population. In contrast, developing countries are still industrializing and urbanizing, so they are just beginning to face the additional challenge of making their development sustainable for the long-term [2]. Urban Planning involves objective or target based process adopted for urban development. It involves analyzing and predicting the urban environment quantitatively and qualitatively to identify and evaluate alternative policy options leading to a beautiful life. The feedback mechanism of the planning process ensures sustainable urban development (Fig. 1) A good research methodology adopted in urban geography provides a dynamic platform for the sustainable living environment. The research methodology adopted for studying the cities require both historical and scientific techniques. Urban development plan requires a multidisciplinary approach involving the specialized people from the diverse field of development planning, management, engineering, architecture, economics, accounts, history, sociology, geography, environment, policy formulation, public administration, statistics, demography, law, psychology, computer sciences, Information and communication technology etc. In order to understand the need of the city, a humanistic approach is required to understand the people their problems and requirements.

Figure 1: Urban Development Planning Process

2. GIS and Remote Sensing in Urban Development Planning of Developing World

GIS and Remote Sensing are modern tools and techniques for efficiently working in urban development planning with some limitations of unavailability and inefficiency of reliable data. The digital maps thus prepared are scale free which can be superimposed to study physical, social, cultural, economic

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Histogenesis and Development of Mirzapur City

P. R. Sharma and Akhilendra Nath Tiwary

The significance of urban heritage of Mirzapur city has histogenetic linkage with 'Vindhyachal Devi', an ancient mythological site nearby the existing city. Mirzapur city is situated on the southern bank of river Ganga in Eastern Uttar Pradesh. In the *Vindhya Mahatamya* of *Brihad Aushnash Puran*, the city finds its earliest mention as Vindhya Kshetra as the city where the Goddess of wealth (*Maha Laxmi*) resides. The name 'Mirza' is made of two words *Mir* (Sea) + *Za* (Outcome), i.e., MahaLaxmi. The city expanded eastwards with lime and during medieval period it was identified as Kantit, which expanded further in the east of river Ojhala during the British period. During medieval period the city was at its peak of glory. The Great Deccan Route passing through the city facilitated the trade of cotton, lac, shellac and indigo which were brought from south and were sold in the northern India via the river ports located on the ancient sites, which were well known cities. The carpet, dye and metal ware industries flourished in the city during the Mughal period. During Post-independence, the city lost its glory in trade and commerce due to negligence. The development of the city has been stagnant since Independence. This paper highlights the histogenetic evolution and development of the city. The objective of the present paper is to study the historical significance of the city in socio-economic and cultural perspective with its urban heritage in a globalizing world.

Key words : Histogenesis, urban development, urban heritage, cultural heritage management, heritage city, heritage tourism, urban landscape.

Introduction

Urban Geography has been studied with three dimensions – urban Histogenesis and evolution, urban land use and morphology and urban planning (Sharma et al, 2005). This paper refers to the Histogenesis and development of urban landscape of Mirzapur city which has linkage with 'Vindhyachal Devi', an ancient mythological site nearby the existing city. Mirzapur city (82° 30'E – 82° 36' 30"E and 25° 11'15"– 25°7'15''N) is situated on the southern bank of river Ganga in Eastern Uttar Pradesh. Mirzapur city in its present form is the product of colonial period, although the Vindhyan region in the west has very long history. The mention of Vindhyan region can be found in almost all the Ancient Indian chronicles epics and literatures. The earliest mention of the city can be found in the writings of Tieffenhaller (1760-1770).He called it Mirzapur a great mart. Jonathan Duncan (Resident of Varanasi) too mentioned the name of the city frequently in his writings (Narain, 1959). It is also believed that the present city was founded by Raja Nanner at Girijapattan village (Girija=Goddess Parvati in Hindu Religion) in the east of Vindhyanchal

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ISSUES AND CHALLENGES IN SUSTAINABLE URBAN DEVELOPMENT: A CASE STUDY OF MIRZAPUR CITY, U.P., INDIA

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ABSTRACT

Urban Planning involves objective or target based process adopted for sustainable urban development. It involves analyzing and predicting the urban environment quantitatively and qualitatively to identify and evaluate alternative policy options leading to a beautiful urban living environment. The quantitative increase in the number of urban centers and populations do not suffice the goal of planning. In India, there is marked increase in the number of cities and the urban population, but in reference to the quality of urban life, it puts a big question mark. When sustainability in terms of good living environment comes, many serious questions arise with no responsible agency or authority to answer. Presently there are 7,935 cities and towns in India [Census, 2011], which have increased by 2,774 in number since last decadal census of 2001. The total urban population in the country as per Census 2011 is more than 377 million constituting 31.16% [27.8% in Census, 2001] of the total population with 53 Million Cities [35 in census, 2001]. The living environment of Indian cities is dwindling fast owing to inefficient land use, increasing number of automobiles, heavy pollution, mismanaged waste disposal, poor quality of housing, water, sanitation, hygiene etc. Detachment of local community in urban development has made the issues worse. The present case study is based on Mirzapur city (25° 11'15''- 25°7'15''N and 82° 30'E – 82° 36' 30' E) situated on the southern bank of the Ganges river in Eastern Uttar Pradesh, India. It is a small Indian city [Area: 38.85 Sq. km and Population: 233,691 (Census of India, 2011)] which despite its urban status since more than a century and being district headquarter, is showing no significant change in sustainable living environment of the city. It has almost all the resources required for the sustainable urban development. The beautiful city is in a very sorry state owing to negligence of local people in planning and a very strong nexus of corrupt politicians, businessmen and bureaucrats at the top. The secular culture

Master Plan Approach in Urban Development: A Case Study of Mirzapur City, Uttar Pradesh, India

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Abstract

Master Plan is a long term perspective plan which deals comprehensively with the significant aspects of urban development. Mirzapur city (25° 11'15'' – 25°7'15''N and 82° 30'E – 82° 36' 30''E) is located along the southern bank of the Ganges River in Eastern Uttar Pradesh, India. It is a small Indian city [Area: 38.85 Sq. km and Population: 233,691 (Census of India, 2011)]. National Highway 7 (longest in India between *Kashmir* in North to *Kanyakumari* in South) passes through it and provides an advantageous meeting point between North and South India. Besides these, two ancient cities lie East (Varanasi or Ancient *Kashi*) and West (Allahabad or ancient *Prayag*) of it. Both of the cities are highly developed in almost all the sphere of politics, social, economic, cultural and administration. In spite of its centrality, Mirzapur city seems to lack any advantage from these cities. The secular culture of city is represented by peaceful co-existence of the communities of *hindus* in *Vindhyanchal* and *muslims* in *Kanat Sharif*. The city has been famous for its carpet and brassware industry ever since the middle periods [16th century]. There are many beautiful natural spots and hills on the outskirts of the city as *Rajdari, Devdari, Lakhaniyadari,* Window falls, *Sirshi* etc. River Ganges has been the life of this city. The city is in a very sorry state today. The development of the city is almost stagnant since last five-six decades. Although there is a master plan prepared by Mirzapur Vindhyanchal Development Authority, but it has not helped the urban development. The present paper is based on the study of the Master plan of the city with focus on finding significant problems and challenges. The study concludes with the major findings and recommendations for the sustainable development of the city.

Key words: urban development, master plan, urban planning, sustainable development, Public Private Partnership, peace and security, heritage, centrality, urbanization.

Introduction

The master plan of a city is identified as a foremost instrument in resource management and physical development of the city. It is a model for future development of the city. It clarifies the class and quality of the land use to be maintained at specific space and time. The importance and utilization of public and private spaces are clarified well in advance. It becomes a reference material in civic and judicial matters. The problem with master plan is that it is more centralized in approach, thus avoiding many public interests at large. If more public participation is encouraged, the problem could easily be solved. Master plans are 'spatial or physical plans which depict on a map the state and form of an urban area at a future point in time when the plan is "realized". Planning was viewed as a technical activity, developing comprehensive plans showing the projected density and intensity of various land uses and their spatial distribution (Watson, 2008). They emerged in part as a method of long-term planning for infrastructure, services and public investment in the relatively slow growing cities of developed countries (Clarke, 1992), but proved to be inappropriate in the context of rapid urbanisation and change in developing countries. In countries where data sources were poor, they took years to produce and were soon out of date. Even in developed countries, unexpected changes in the economy and in the size and type of households in the 1970s undermined this type of planning (Healey et al., 1997). There have been significant efforts in India over the past two decades to devolve power

विंध्याचल का भौगोलिक अध्ययन और विकास-योजना

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परिचय

विंध्याचल मिर्जापुर शहर के पश्चिम में स्थित एक प्राचीन हिन्दू धार्मिक स्थल है। यहाँ म लक्ष्मी की उपासना की जाती है। इस स्थान को बिंदुवासिनी अर्थात् तीन देवि स्थानों के मध्य स्थित बिंदु भी माना जाता है। विंध्य क्षेत्र का उल्लेख सभी प्राचीन भारतीय इतिहास की पुस्तके में पाया जाता है। यह ऐतिहासिक स्थान प्राकृतिक सौन्दर्य, पहाड़ियों, नदियों, झरनों और कन्द जीवन से घिरा हुआ है। १९१३ में, कलकता में, तीसरे हिन्दी साहित्य सम्मेलन में, प्रसिद्ध कवि और लेखक चौधरी बदरी नारायण 'प्रेमघन' ने 'मिर्जा' शब्द की व्याख्या भीर = जल (सागर) और जा = उत्पन्न अर्थात् 'लक्ष्मी' के रूप में की। मेले और त्यौहार इस शहर के लोगों के लिए जीवन का एक तरीका है। शहर की ऐतिहासिक और सांस्कृतिक विरासत के बीच कला और सौन्दर्य शास्त्र, मेले और त्यौहार, कजली-अखाड़े और प्रसिद्ध कलाकारों के साथ लोकसंगीत शहर की पहचान है। विंध्य त्रिकोण और उर्स ख्वाजा जनाब इस्माइल चिश्ती रेहमतुल्ला का पावन स्थान, लोगों और शहर के धर्मनिरपेक्ष, ऐतिहासिक और सांस्कृतिक विरासत का साक्षी रहा है। महत्त्वपूर्ण मेलों और त्यौहारों में शामिल कजली बरसात के मौसम में, बासंतिक नवरात्र मेला फरवरी-मार्च में और शारदीय नवरात्र मेला अक्टूबर-नवंबर में, अक्टूबर में उर्स, चावन नमाज मेले नवंबर, लोहंदी महावीर मंदिर में कार्तिक पूर्णिमा और श्रावण के प्रत्येक शनिवार को लोहंदी मेला लगता है। चैत व शारदीय नवरात्र के नौ दिनों तक विशाल मेला लगता है। इस मेले में २५ लाख से भी अधिक श्रद्धालु पहुँचते है। 'कजली' संस्कृत शब्द काजल से बना है, जिसका अर्थ है– काला बादल। साथ ही; देवी विंध्यवासिनी, जो बाल रूप से आँखों में काजल धारण करने की वजह से कजरवा या कजरी भी कही जाती हैं। कजली तीज और कजरवा मेला बहुत ही धूम-धाम से मनाया जाता है। 'कजली तीज' अगस्त-सितंबर के महीने में भाद्र कृष्ण तृतीया को मनाया जाता है। प्रसिद्ध कजली के अखाड़े बहुत प्राचीन काल से प्रसिद्ध है। समी कजली अखाड़ों में गायन की अपनी विशिष्टता है। इन अखाड़ों ने देश के स्वतंत्रता-संग्राम में और सामाजिक बुराइयों के खिलाफ लोगों को जाग्रत करने में बहुत महत्त्वपूर्ण भूमिकाएँ निभाई। श्रीमद्भागवत् में विंध्य क्षेत्र को सर्वोत्तम कहा गया है– 'विध्यांचल निवासिन्या स्थानम् सर्वोत्तमम्'

प्रमुख समस्याएँ

१. शहर का भौतिक विकास बेतरतीब और अनियंत्रित है।

२. लोग शहर की समृद्ध सांस्कृतिक विरासत के प्रति लापरवाह है। शहर में हेरिटेब इमारतों, स्थलों और नदी घाटों पर अवैध अतिक्रमण हो गए है।

* सहायक आचार्य एवं अध्यक्ष– भूगोल विभाग एवम् सचिव, शिक्षक संघ, सरदार वल्लभ भाई पटेल महाविद्यालय, वीर कुँवर सिंह विश्वविद्यालय, आरा। भूतपूर्व सहआचार्य और विभागाध्यक्ष–भूगोल एवम् उप संकायाध्यक्ष सामाजिक और प्रबंधन संकाय, योबे स्टेट यूनिवर्सिटी, नाइजीरिया

** सहायक आचार्य– भूगोल विभाग, नेहरू ग्राम भारती मानित् विश्वविद्यालय, प्रयागराज, उत्तर प्रदेश। भूतपूर्व सहआचार्य– भूगोल, योबे स्टेट यूनिवर्सिटी, नाइजीरिया

URBAN DEVELOPMENT OF NORTHERN NIGERIA: A CASE STUDY OF NGURU IN YOBE STATE

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Kubura Abdulhamidu Nuhu**

Abstract: Urban Development of Northern Nigeria is a big challenge due to serious security situation and lack of government will to implement the development plans. The present study is based on the appraisal of the only master plan of Nguru (1976) prepared by Maxlock group. There is no new master plan since last four decades. Nguru town is headquarter of Nguru Local Government Area (LGA) in Yobe state, northern Nigeria. It is located near river Hadejia at $12^0 52^1 45^{11}$ N to $10^0 27^1 09^{11}$ E. It has population of 150,632 (Census, 2006) and an area of 916 sq. km. The town is comparatively younger developed on a rapid grid-iron pattern during 1930s. The topography of Nguru is mainly flat with a variety of landscapes as; Hadejia-Nguru wetlands of Nguru Lake and the Sand dunes around machine road. Nguru has hot and dry climate throughout the year. The economy of the town is based on trade and commerce of gum Arabic, groundnut, meat, hides and skins. The present paper is an appraisal study of Nguru master plan. The most significant problem of the study area is lack of effective implementation of the master plan. Extensive field work has been carried out amidst volatile security of the area. Among the major findings, the issues of land use are predominant along with poor plan implementation and lack of people's participation in the planning process. Some of the major recommendations based on the research findings include; strong financial support from government, strong administrative set up with trained professional form multiple disciplines and people's active participation in planning.

Key words: urban development, sustainable development, living environment, master plan, urban planning, Public Private Partnership, peace and security, Local Government Area.

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A Geographical Study of Slums in Mirzapur City (Uttar Pradesh)

Urban life and poverty should be two opposite aspects of life, but in reality the situation is adverse. Urban is a way of life or quality of life demands for a good living condition which need to address various issues (urban services, amenities and facilities, means of livelihood, housing, living environment, social security etc. Urbanization should foster sustained economic growth which is critical to poverty reduction, but the reality is before correct is questionable as the slums and squatter settlements are growing to large pace. A slum, is defined by the United Nations agency UN-HABITAT, is a run-down area of a city characterized by substandard housing and lacking in tenure security. The term has traditionally been referred to housing areas that were once relatively affluent but which deteriorated as the original dwellers moved on to newer and better parts of the city, but has come to include the vast informal settlements found in cities in the developing world. The urban slum are often characterized by high-concentration and overcrowding, predominated by very poor and socially disadvantaged groups. They often exhibit high concentrations of drug abuse, alcoholism and criminals.

Slums as defined by Census of India 2001, as a compact area of at least 300 population or about 60-70 households of poorly built, congested tenements, in unhygienic environment usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities. Rapid growth of slums has put a lot of pressure on the existing level resources and infrastructure of the cities and has led to deterioration of their physical environment. The people live in the unhygienic conditions with inadequate infrastructure facilities for a long time. The poor environmental conditions within the slum areas adversely affect the health of the residents. Financial constraints on the part of civic authorities and non-enforceability of the slums also contribute to non-delivery or partial delivery of basic facilities and amenities to them. Proper planning is required to address the problems of these slums and create them a good living environment and the sustainable means of livelihood. There are many schemes for the rehabilitation and redevelopment of the slums, but they have been

marginally successful owing to various socio-economic and political reasons. Slum formation is closely linked to economic cycles, trends in national income distribution, and in more recent years, to national economic development policies. The report finds that the cyclical nature of capitalism increased demand for skilled versus unskilled labour, and the negative effects of globalization — in particular, economic booms and busts that ratchet up inequality and distribute new wealth unevenly — contribute to the enormous growth of slums. The report states that, in the past, the global economic system was responsible for creating the famous slum areas of major cities in today's developed world and it is very likely to do the same again in the developing world (UN-HABITAT, p.2).

India's slum population more than doubled, from 45 million in 2001 to 93 million in 2011 in ten years and it is projected to grow at 5% per year, adding nearly nine million every year, according to official Government data. Across other India areas twelve million more will be added to the slums by 2017 (Srivastava, p.1).

The Expected growth of urban slum population in the country 2011 to 2017
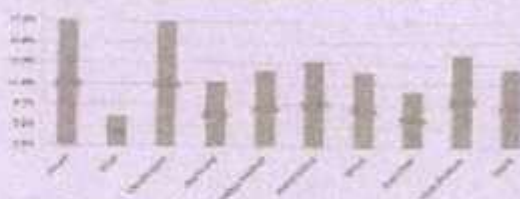
It is estimated that by 2030 40.6% of the country's population will be living in urban areas (UN Population Division, World Urbanization Prospects: The 2007 Revision Population Database 2.). Apart from poverty, which hinders the urban poor's capacity to fulfil basic survival needs, they live in congested conditions which promote the spread of infectious disease with poor sanitation and drinking water

UN Population Division (2007). "World Urbanization Prospects: The 2007 Revision Population Database 2".

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Tourism Development of Vindhyanchal, Mirzapur, U.P. India

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Abstract:

Vindhyanchal is a very famous tourist place in the west of Mirzapur city of Uttar Pradesh State, India. The name of the City Mirzapur finds its origin as Girija pur [Girija is another name of Parvati, wife of Lord Shiva] (Mishra, 1888). In the Hindu mythology, it is believed that the primordial creative forces of the GOD and the power of the GODDESS form superimposing triangles opposite each other as hexagram at a point/node (Point/node *(Bindu)* + located *(Vasini)* or *Vindhyavasini*, located in a point/node) in Vindhyanchal. The place is blessed with many important tourist and historical places such as; Vindhyan triangle (Religious circumnavigation triangle formed by Lakshmi (Goddess of wealth which originated from Sea; Mir+Za = origin from Sea) , Kali (destroyer form of Girija or Parvati) and Saraswati (Goddess of Knowledge)}, Rameshvar temple, Tarkeshvar temple, Naag Kund, Ojhla Bridge, Kantit Shariff (mausoleum of Khwaja Janab Ismail Chisti Rehematulla, nephew of most famous sufi saint Khwaja Moinuddin Chisti 'Garib Nawaj' of Ajmer). There are many beautiful natural sites for recreation, i.e, Tanda Fall, Vindham Fall, Khajuri Dam, Sidhnath ki Dari, Lakhania Dari, etc. The tourist city of Varanasi is 50 km in east and Allahabad is 90 km in west. There are many thousands of tourists visiting to these two cities but don't prefer to visit Vindhyanchal. It fails to attract good number of tourists. In the present research paper, the reason behind failing number of tourists are examined and proper recommendations are given to improve the place as important centre of tourism.

Keywords: Vindhyan Triangle, circumnavigation, secular, pilgrimage, heritage

Background of the Study

Vindhyanchal is very ancient historical site surrounded by many natural sites as; hillocks, rivers, ponds, waterfalls, etc. The cultural influence of the city is secular with good number of hindu and muslim pilgrimage done in the seasons of navratra (nine days of prayers of Goddess twice in autumn as well as spring seasons among Hindus) in Vindhyanchal and Urs in Kantit respectively. There are many tourist spots such as Great Deccan route, Baman Temple, Lohandi Mahvir, Rameshvar Temple, Tarkeshvar Mahadev Temple, Vindhyavasini Temple, Asthabhuja Temple, Kali Khoh Temple, Sita pond, Gerua pond, Motia pond, Ramgaya Ghat, Ram Shila, Pret Shila, Devi Ghat, Ojhala Bridge, Kantit Sharif, Bandhva Mahavir, Lal Bhairo Temple, Batuk Bhairo Temple, Radha Krishna Temple, Gangeshvar Mahadev Temple, Vankhandishvar Mahadev Temple, Mukteshvar Mahadev Temple, Nag Kund or Bawan Ghat ki Bawali, Nageshvar/ Dugdheshvar Mahadev Temple, Remnants of Bhar's Palace of Kantipuri, etc. Important picnic spots are Tanda Fall, Vindham Fall, Khajuri Dam and Kharanga (Fig. 1).

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[पाठ अत्यधिक धुंधला — बायाँ स्तंभ अधिकांशतः अपठनीय]

संदर्भ ग्रन्थ-सूची

1. [अपठनीय]
2. [अपठनीय]
3. [अपठनीय]
4. [अपठनीय]
5. [अपठनीय]
6. [अपठनीय]
7. [अपठनीय]
8. [अपठनीय]
9. [अपठनीय]
10. [अपठनीय]
11. [अपठनीय]

सामाजिकता और सांस्कृतिकता का संघर्ष –
"त्रिशूल"

★ प्रियंका कुमारी मिश्रा

[मुख्य पाठ अत्यधिक धुंधला — अधिकांशतः अपठनीय]

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Prospects and Constraints in Development of Varanasi as Smart City, India

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Abstract

At Present 33.66 million (27.8% of total population of 1.2 billion persons, Census of India, 2011) people of India live in 4041 statutory towns, 3894 census towns, 475 Urban agglomerations and 981 outgrowths. Out of this urban population, 43% (14.47 million) reside in only 53 million cities and 70% reside in Class I cities. Three urban agglomerations viz. Greater Mumbai, Delhi and Kolkata have crossed the 10 million mark in population and five cities viz. Chennai, Bengaluru, Hyderabad, Ahmadabad and Pune have attained more than 5 million population [13]. Such a large number of urban places and people pose serious challenge to the planners and government on their qualitative of life and sustainable development. This paper is an attempt to examine the concept of smart city in respect of Varanasi in the state of Uttar Pradesh (79.79 sq km area and 1.4 million population). Varanasi is a very ancient city which is famous for the temple of Baba Vishwanath (Hindus), Sarnath (Buddhists), music, learning, silk weaving, handicrafts, textiles, toys, ornaments, metal ware, wood works, crafts, etc. Government of India has proposed to develop the city as a smart city with confluence of heritage and modernity by 2019. The present study is based on discussing the prospects and constraints in the proposed and give some viable recommendations for development of the city. This paper argues that sustainable smart cities policy should be adopted utilizing modern information and communication technology while avoiding the haphazard development. It discusses the scope of sustainable development through different

parameters and policy to achieve smart city status of Varanasi.

Introduction

Before adopting smart city development plan, it is important to address socio-economic, political and environmental concerns. There is no existing evidence in India that can explain if trends of sustainable cities are affected by, for example, residential density, transport accessibility and layout [7]. Prime Minister of India Mr. Narendra Modi announced his vision to set up 100 smart cities across the country by 2019 [3] Varanasi in Eastern Uttar Pradesh State has also been selected to be developed as a 'smart city' with cooperation from Kyoto, the Japanese 'smart city' which is a confluence of heritage and modernity. According to the ministry's proposed plan, the city's heritage structures are to be restored even as its infrastructure is to be upgraded. Three sub cities; Sarnath, Banaras Hindu University and Airport City would be carved out as smart sub-cities, interconnected by a network of flyovers. The idea is to ensure that commuting from one sub-city to another does not take more than 30 minutes. The proposed transport infrastructure also includes a metro rail, an

Water Resources Conservation and Management Strategies

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While 67% of Earth's surface is covered by water, only less than 2.7% of global water is freshwater. Most of the freshwater (2.05%) are locked in ice caps and glaciers. Only less than 0.7% is available for human use. It is not scarcity of fresh water but misuse and over use without proper budgeting in our day to day life, commercial and industrial use. Water as a vital resource is sufficient for human consumption if used judiciously. Presently it is consumed in highly unsustainable way which is a matter of shame to the developing society. With growing urbanization and industrialization, demand of water has increased manifold but the urban areas and industries are not following proper measures to restore, recharge and reuse the water after their utilization. At once they are digging deep and taking out ground water. in turn they dump wastage in deep bore wells to avoid government legal action. The refuse/waste and sewer flown away at the surface level badly pollutes the rivers and water bodies at large. In absence of strict laws and sensitivity of immediate communities, this crime of polluting land surface and surface water is omnipresent with nobody to take action or responsibility to ensure their cleanliness. The present article tries to focus on issues related to normalisation of the water cycle, freshwater availability, challenges raised due to urbanization and industrialization. It excludes technical terms and other political water conflict issues and the problems of flood and drought. Its major focus is to adopt

"हिन्दी निबंध और आचार्य रामचन्द्र शुक्ल का योगदान"

*प्रियंका कुमारी मिश्रा

हिन्दी साहित्य का इतिहास गद्य-पद्य समग्र विधाओं से अलंकृत है। साहित्य की दृष्टिकोण से आधुनिक काल सबसे महत्वपूर्ण है, इस कालक्रम में गद्य और पद्य दोनों विधाओं की प्रतिष्ठा हुई। प्राचीन साहित्य की जड़े पद्यात्मक रचना वल्लरियों तक ही सम्भवत: सीमित थी, परन्तु आधुनिक साहित्य का अधिकांश दृष्टिपटल सम्पूर्ण साहित्य धरा पर अवलम्बित हुई। आधुनिक साहित्य में गद्य की विभिन्न विधाओं— नाटक, उपन्यास, कहानी, निबंध, आलोचना, जीवनी, संस्मरण इत्यादि विषयों का सर्जन हुआ।

गद्य की चिन्तन धारा निबंध है। प्राचीन युग में निबंध हाथ संस्कृत साहित्य में विद्यमान था। अत: संस्कृत आचार्य वामन की उक्ति- "गद्य कवीनां निकषं वदति।" निबंध का शाब्दिक अर्थ है- "कसा हुआ, बंधन युक्त, कल्पद्रुम के अनुसार—निबध्नातीति निबंध अर्थात् जो बाँधता है वही निबंध।" एक अन्य व्याख्या के अनुसार किसी विषय पर निश्चित रूप से विचारों की श्रृंखला बाँधने या संग्रह करने को निबंध कहते है।

हिन्दी में निबंध एक सशक्त एवं स्वतंत्र विधा के रूप में विकसित हुआ है, जिस पर पाश्चात्य शिल्प का प्रभाव प्रमूत मात्रा में पड़ा है- "निबंध के जन्मदाता 'मातेन' ने इसे 'प्रयास' कहा है। उनके अनुसार निबंध विषयों, उदाहरणों और आख्यानक वृतों का सम्मिश्रण होता है।" अन्य पाश्चात्य निबंधकारों में क्रैबल, जानसन, एडिसन, गोल्डस्मिथ, गार्डिनर, शर्बालीयढ आदि ने निबंध विधा को अपने कौशल रचना शैली से और अधिक विस्तृत बनाया, इनके अनुसार निबंध ने विश्वसनीयता

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वैयक्तिक स्पर्श, विचार गांभीर्य, रमणीयता, परम्परा और संस्कृति को पुनर्जीवित आदि गुणों की प्रतिष्ठापना की।

हिन्दी गद्य साहित्य की विधाओं में निबंध एक महत्वपूर्ण गौरवपूर्ण एवं सशक्त विधा है- "निबंध में बुद्धि तत्व, शैली तत्व और राग तत्व एवं कल्पना तत्व का समावेश अनिवार्य है।" इस विधा के माध्यम से लेखक के व्यक्तित्व की अभिव्यक्ति सर्वाधिक मुखरित होती है।

इसी संदर्भ में हिन्दी निबंधकार श्री जयनाथ नलिन के शब्दों में— "निबंध स्वाधीन चिंतन और निश्छल अनुभूतियों का सरस, सजीव और मर्यादित गद्यात्मक प्रकाशन है।" समीक्षकों और आलोचकों की दृष्टि से यह विधा कैसे अछूता रह सकता है, अत: हिन्दी के आलोचक आचार्य नंददुलारे वाजपेयी के शब्दों में— "स्वानुभूति से सम्पन्न एवं व्यक्तित्व से पूर्ण प्रतिबिम्बित निबंधों को पूर्ण मानते है। इससे भी व्यक्तिवादी निबंधों को पूर्ण मान्यता मिल जाती है।" इन्ही श्रेणी में आचार्य गुलाबराय की परिभाषा में— निबंध के सभी लक्षणों के दर्शन होते हैं। उनके शब्दों में— "निबंध उस गद्य रचना को कहते है, जिसमें एक सीमित आकार के भीतर भी ऐसे विषय का वर्णन या प्रतिपादन एक विशेष निजीपन, स्वच्छन्दता सौष्ठव और सजीवता तथा आवश्यक संगीत और सम्बद्धता के साथ दिया गया हो।"

हिन्दी साहित्य के इतिहास में प्रख्यात पं0 रामचन्द्र शुक्ल एक ऐसे निबंधकार थे, जिन्होंने निबंध को गद्य की समस्त विधाओं में श्रेष्ठ माना। उनके अनुसार- "गद्य कवियों की कसौटी है, तो गद्य की कसौटी निबंध है।" शुक्ल जी ने वास्तविक निबंध उसे ही माना है, जिसमें विचार कस—कस कर भरे हुए हो।

वस्तुत: निबंध व्यक्ति की मानसिक चेतना, गहन और भावात्मक अनुभूति का गद्यात्मक रूप है। इसमें बुद्धि और हृदय दोनों का सामंजस्य अनिवार्य है। जिसमें निबंधकार का व्यक्तित्व प्रमुख होता है। निबंध गद्य रचना का एक प्रमुख अंग है। जिसके अन्तर्गत विचारों की स्वतंत्रता, भावों की प्रधानता, परिमार्जित भाषा की अधिकता हो वही गद्य निबंध की

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CHANGING PATTERN OF CROP DIVERSIFICATION OF INDIAN AGRICULTURE

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The agriculture sector at present employs 60 percent of the country's work force. With the development of alternative sources of employment in the rural areas, viz., agro industries, supportive infrastructure, etc., it is hoped that the share of population dependent on agriculture will come down, though not commensurately, by the year 2020. It is hoped that 45-50 per cent of the population will be dependent on agriculture by that time.

In spite of the impressive achievements, the Indian agricultural sector continues to face poor infrastructure conditions. Less than 36 per cent of the cultivated land is under any assured irrigation system.

Keywords: Agriculture, Diversification and Crops.

INTRODUCTION

India is a country of about one billion people. More than 70 percent of India's population lives in rural areas where the main occupation is agriculture. Indian agriculture is characterized by small farm holdings. The average farm size is only 1.57 hectares. Around 93 per cent of farmers have land holdings smaller than 4 ha and they cultivate nearly 55 percent of the arable land.

Crop diversification is intended to give a wider choice in the production of a variety of crops in a given area so as to expand production related activities on various crops and also to lesson risk. Crop diversification in India is generally viewed as a shift from traditionally grown less remunerative cops to more remunerative crops. The crop shift (diversification) also takes place due to governmental policies and thrust on some crops over a given time, for example creation of the Technology Mission on Oilseeds (TMO) to give thrust on oilseeds production as a national need for the country's requirement for less dependency on imports. Market infrastructure development and certain other price related supports also induce crop shift. Often low volume high-value crops like spices also aid in crop diversification.

Crop diversification and also the growing of large number of crops are practiced in rain fed lands to reduce the risk factor of crop failures due to drought or less rains. Crop substitution and shift are also taking place in the areas with distinct soil problems.

Crop Production and Economics Scenario

The agriculture sector at present employs 60 percent of the country's work force. With the development of alternative sources of employment in the rural areas, viz., agro industries, supportive infrastructure, etc., it is hoped that the share of population dependent on agriculture will come down, though not commensurately, by the year 2020. It is hoped that 45-50 per cent of the population will be dependent on agriculture by that time.

India has made tremendous progress in the agricultural sector over the last 50 years. From hand to mouth conditions in the early sixties, we have not only become self reliant in food grains but have acquired sufficient resilience to tide over the adverse conditions.

In spite of the impressive achievements, the Indian agricultural sector continues to face poor infrastructure conditions. Less than 36 per cent of the cultivated land is under any assured irrigation system.

As a result, the productivity levels of many major crops in India do not compare very favorably with the yield obtained in agriculturally advanced countries. Further, these factor coupled with high illiteracy constrain the farmer's ability to shift to more remunerative cropping patterns in response to market signals. Therefore, their capacity to take advantage of the opportunities presented by liberalization of trade is limited. The country's agriculture has gained in strength and resilience since independence, although growth in agriculture has gained in strength and resilience since independence, although growth in agriculture is highly skewed over regions and crops.

However, the agriculture sector in India is now faced with intense and external pressures arising from the impact of policies of economic liberalization. Efficient and effective management of agriculture will be crucial in the years to come for acquiring enduring self-reliance and ensuring sustainable growth with an emphasis on consideration of equity.

Crop Diversification in the Indian Perspective

With the advent of modern agricultural technology, especially during the period of the Green Revolution in the late sixties and early seventies, there is a continuous surge for diversified agricultural in terms of crops, primarily on economic considerations.

- Resource related factors covering irrigation, rainfall and soil fertility.
- Technology related factors covering not only seed, fertilizer, and water technologies but also those related to marketing, storage and processing.
- Household related factors covering food and fodder self-sufficiency requirement as well as investment capacity.
- Price related factors covering output and input prices as well as trade policies and other economic policies that affect these prices either directly or indirectly.
- Institutional and infrastructure related factor covering farm size and other economic

policies that affect these prices either directly or indirectly.

- Institutional and infrastructure related factors covering farm size and tenancy arrangements, research, extension and marketing systems and government regulatory policies.

Obviously, these factors are not watertight but inter-related. For instance, the adoption of crop technologies is influenced not only by resource related factors but also by institutional and infrastructure factors. Similarly, government policies- both supportive and regulatory in nature-affect both the input and output prices. Likewise, special government programmers also affect area allocation and crop composition. More importantly, both the economic liberalization policies as well as the globalization process are also exerting strong pressures on the area allocation decision of farmers, essentially through their impact on the relative prices of inputs and output.

Similarly, economic factors play a relatively stronger role in influencing the crop pattern in areas with a better irrigation and infrastructure potential. In such areas, commercialization and market networks co-evolve to make the farmers more dynamic and highly responsive to economic impulses.

Consequences of Crop Pattern Changes

Turning now to the Socio-economic and environmental consequences of crops pattern changes the Green Revolution technologies have fomented, among other things, an increasing tendency towards crop specialization and commercialization of agriculture. While these developments have positive effects on land/labor productivity and net farm income, they have also endangered a number of undesirable side effects like reduced farm employment and crop imbalances. Besides, crop pattern changes also lead to serious environmental consequences that take such forms as groundwater depletion, soil fertility loss and water logging and salinity- all of which can reduce the productive capacity and growth potential of agriculture over the long-term.

Agricultural policies in the past have witnessed a series of iterative changes following the economic reforms during the 1990s that marked a significant departure from the past. Though many of the reform processes were not initiated to directly affect the agriculture sector, it was affected indirectly (Chand, 2004). The mounting stock of food grains has partly been due to the weak purchasing power of the poor in the country. Nevertheless, the problem associated with buffer stock management and degradation of natural resources in some regions has triggered a debate to redefine the agricultural policies. As a remedial measure, it has been suggested that India should diversify its agriculture and get a foothold in the world market (Radhakrishna and Reddy, 2004). The diversified and accelerated agricultural growth would enhance the food security by improving the purchasing power of the poor in the perplexing situation of shrinkage in agricultural holdings, declining new investments in agriculture and increasing degradation of natural resources (Joshi et al., 2004).

Diversification is an integral part of the process of structural transformation of an economy. As in other developing countries, Indian economy is also diversifying at the macro level with the secondary and tertiary sectors becoming progressively more important in terms of their contributions to national income as well as disposition of the workforce.

Within the agriculture, some of the sub-sectors are progressively occupying a more significant place than the crop production, and within the crop-mix, the so-called superior cereals are progressing faster than the inferior cereals.

However, the factors promoting diversification and the speed with which the changes occur vary under different situations (Vyas, 1996). Moreover, before a sincere attempt is made to suggest policies with regard to diversification, a thorough probe into the pattern and mode of diversification needs to be attempted. The present study was planned to schematize the pattern and ways of diversification across various states/crops in India.

Further, it was also intended to decipher various determinants of diversification in India and their implications on agricultural economy and trade.

Diversification and Its Components

Diversification is basically understood as signifying the shift from the agricultural to the industrial domain. But, the intricacies underlying the diversification are many and need threadbare understanding. Though the former type of diversification indicates shift from one crop to another crop or from one enterprise/sub-sector to another enterprise/sub-sector, the other type of diversification may involve income-enhancing enterprises in addition to the existing ones. In essence, the diversification to commercial crops/commodities becomes an essential strategy that can increase incomes in agriculture, minimize risks due to crop failures and above all, earn foreign exchange. Planned diversification increases both individual and social gains (Haque, 1996). This diversification strategy can be designed to help alleviate poverty, generate employment and conserve environment (Hayami and Otsuka, 1995).

In India, diversification has occurred both across and within the crop, livestock, forestry and fishery sectors. Within the agriculture, the share of output and employment in the non-crop sectors, i.e. animal husbandry, forestry and fisheries, has been gradually increasing. Thus, diversification is taking place in terms of moving away from crop production to other agricultural activities. More significant changes are taking place within the crop sector, as is evident from the changes in cropping pattern, shown later.

Determinants of Diversification

Diversification offers a wider choice in the production of crops in the given area. The shift in cultivation from traditional, less-remunerative crops to higher-value crops leads to higher incomes for the producer. At the same time, cultivation of a variety of crops reduces risk. Several factors can induce a shift in the crops grown. These include government policies that promote specific crops, development of infrastructure like roads and markets, and relative profitability of crops.

The horizontal diversification is the increase in the number of crops grown given the economical rationality of this expansion. The extent of horizontal diversification can be gauged empirically through Simpson's index of diversification (SID). The Simpson index for major states was computed to evaluate the extent of diversification at two-points of time.

India is a country of about one billion people. More than 70 percent of India's population lives in rural areas where the main occupation is agriculture. Indian agriculture is characterized by small farm holdings. The average farm size is only 1.57 hectares. Around 93 percent of farmers have land holdings smaller than 4 ha and they cultivate nearly 55 percent of the arable land. On the other hand, only 1.6 of the farmers have operational land holdings above 10 ha and they utilize 17.4 percent of the total cultivated land. Due to diverse agro-climatic conditions in the country, a large number of agricultural items are produced. Broadly, these can be classified into two groups - foodgrains crops and commercial crops. Due to the challenge of feeding our vast population and the experience of food shortages in the pre-independence era, 'self reliance' in foodgrains has been the cornerstone of our policies in the last 50 years. Around 66 percent of the total cultivated area is under foodgrain crops (cereals and pulses). Concurrently, commercial agriculture developed for whatever reasons in the pre-independent phase also kept flourishing during the post independent period. Commercial agriculture not only catered to the domestic market but has also been one of the major earners of foreign exchange for the country.

Crop diversification is intended to give a wider choice in the production of a variety of crops in a given area so as to expand production related activities on various crops and also to lessen risk. Crop diversification in India is generally viewed as a shift from traditionally grown less remunerative crops to more remunerative crops. The crop shift (diversification) also takes place due to governmental policies and thrust on some crops over a given time, for example creation of the Technology Mission on Oilseeds (TMO) to give thrust on oilseeds production as a national need for the country's requirement for less dependency on imports. Market infrastructure development and certain other price related supports also induce crop shift. Often low volume high-value crops like spices also aid in crop diversification. Higher profitability and also the resilience/stability in production also induce crop diversification, for example sugar cane replacing rice and wheat. Crop diversification and also the growing of large number of crops are practiced in rainfed lands to reduce the risk factor of crop failures due to drought or less rains. Crop substitution and shift are also taking place in the areas with distinct soil problems. For example, the growing of rice in high water table areas replacing oilseeds, pulses and cotton; promotion of soybean in place of sorghum in vertisols (medium and deep black soils) etc.

CROP PRODUCTION AND ECONOMIC SCENARIO

The share of the agriculture sector in the total GDP has declined rapidly and this trend will continue. By 2020, the share of agriculture in the total GDP of the country is likely to be reduced to 15 percent due to faster development of non-agriculture sectors. The agriculture sector at present employs 60 percent of the country's work force. With the development of

alternative sources of employment in the rural areas, viz., agro industries, supportive infrastructure, etc., the share of population dependent on agriculture will come down, though not commensurately, by the year 2020. It is 45-50 percent of the population is dependent on agriculture by that time.

India's performance during the post-independence period has been a matter of pride and satisfaction. The agricultural sector has left behind the era of shortages and dependence on imports and arrived at a stage of self-sufficiency and occasional surpluses. The Green, White, Yellow and Blue revolutions have been landmarks that have been claimed and recognized the world over. India is now the largest producer of wheat, fruits, cashew nut, milk and tea in the world and second largest producer of vegetables and fruits. India is the largest producer, consumer and exporter of spices in the world and the largest exporter of cashew. Foodgrains production has increased four-fold since independence, from 51 million tonnes (Mt) during 1950/51 to 203 Mt during 1998/99. The scourge of severe food shortages is now a thing of the past as is the dependence on imports. India's agriculture has passed through four distinct phases of strategy: a) starting with the intensification of efforts in identified areas, using traditional technology and expansion of area during the pre-Green Revolution period; b) through a new strategy of use of modern inputs and high yielding varieties in irrigated areas during the late sixties and the seventies, (Green Revolution); c) further through a period of greater focus on management of linkages and infrastructure, such as, marketing, trade and institution building; and, d) to an era of liberalization and relaxation of controls during the nineties. The journey has been arduous but rewarding. The agriculture sector has been successful over the past five decades in keeping pace with the rising food demand of a growing population (already crossed one billion in May, 2000). This sector provides raw materials to the major industries of the country which are largely agro-based like cotton, sugar, etc. It contributes nearly 16 percent of the country's total export.

In spite of the impressive achievements, the Indian agricultural sector continues to face poor infrastructure conditions. Less than 36 percent of the cultivated land is under any assured irrigation system. Farmers on the remaining two thirds of the land are completely dependent on rainfall, which is also greatly characterized by large variations in terms of precipitation both spatially and in time. For a large majority of farmers in different parts of the country gains from application of science and technology in agriculture have yet to be realized. As a result, the productivity levels of many major crops in India do not compare very favourably with the yields obtained in agriculturally advanced countries. Further, these factors coupled with high illiteracy constrain the farmer's ability to shift to more remunerative cropping patterns in response to market signals. Therefore, their capacity to take advantage of the opportunities presented by liberalization of trade is limited. The country's agriculture has gained in strength and resilience since independence, although growth in agriculture is highly skewed over regions and crops. However, the agriculture sector in India is now faced with intense internal and external pressures arising from the impact of policies of economic liberalization. Efficient and effective management of agriculture will be crucial in the years

to come for acquiring enduring self-reliance and ensuring sustainable growth with an emphasis on consideration of equity.

PATTERNS OF CROP DIVERSIFICATION

Crop Diversification in the Indian Perspective

With the advent of modern agricultural technology, especially during the period of the Green Revolution in the late sixties and early seventies, there is a continuous surge for diversified agriculture in terms of crops, primarily on economic considerations. The crop pattern changes, however, are the outcome of the interactive effect of many factors which can be broadly categorized into the following five groups:

a) Resource related factors covering irrigation, rainfall and soil fertility.

b) Technology related factors covering not only seed, fertilizer, and water technologies but also those related to marketing, storage and processing.

c) Household related factors covering food and fodder self-sufficiency requirement as well as investment capacity.

d) Price related factors covering output and input prices as well as trade policies and other economic policies that affect these prices either directly or indirectly.

e) Institutional and infrastructure related factors covering farm size and tenancy arrangements, research, extension and marketing systems and government regulatory policies.

Obviously, these factors are not watertight but inter-related. For instance, the adoption of crop technologies is influenced not only by resource related factors but also by institutional and infrastructure factors. Similarly, government policies - both supportive and regulatory in nature - affect both the input and output prices. Likewise, special government programmes also affect area allocation and crop composition. More importantly, both the economic liberalization policies as well as the globalization process are also exerting strong pressures on the area allocation decision of farmers, essentially through their impact on the relative prices of inputs and outputs. Although the factors that influence the area allocation decision of farmers are all important, they obviously differ in terms of the relative importance both across farm groups and resource regions. While factors such as food and fodder self-sufficiency, farm size, and investment constraints are important in influencing the area allocation pattern among smaller farms, larger farmers with an ability to circumvent resources constraints usually go more by economic considerations based on relative crop prices than by other non-economic considerations. Similarly, economic factors play a relatively stronger role in influencing the crop pattern in areas with a better irrigation and infrastructure potential. In such areas, commercialization and market networks co-evolve to make the farmers more dynamic and highly responsive to economic impulses.

What is most notable is the change in the relative importance of these factors over time. From a very generalized perspective, Indian agriculture is increasingly getting influenced more and more by economic factors. This need not be surprising because irrigation expansion,

infrastructure development, penetration of rural markets, development and spread of short duration and drought resistant crop technologies have all contributed to minimizing the role of non-economic factors in crop choice of even small farmers. What is more, the reform initiatives undertaken in the context of the ongoing agricultural liberalization and globalization policies are also going to further strengthen the role of price related economic incentives in determining crop composition both at the micro and macro levels. Obviously, such a changing economic environment will also ensure that government price and trade policies will become still more powerful instruments for directing area allocation decisions of farmers, aligning thereby the crop pattern changes in line with the changing demand-supply conditions. In a condition where agricultural growth results more from productivity improvement than from area expansion, the increasing role that price related economic incentives play in crop choice can also pave the way for the next stage of agricultural evolution where growth originates more and more from value-added production.

Consequences of Crop Pattern Changes

Turning now to the socio-economic and environmental consequences of crop pattern changes, the Green Revolution technologies have fomented, among other things, an increasing tendency towards crop specialization and commercialization of agriculture. While these developments have positive effects on land/labour productivity and net farm income, they have also endangered a number of undesirable side effects like reduced farm employment and crop imbalances. Although the expansion of commercialized agriculture has fomented new sets of rural non-farm activities and strengthened the rural-urban growth linkages, it has also weakened the traditional inter-sectoral linkages between the crop and livestock sectors. Besides, crop pattern changes also lead to serious environmental consequences that take such forms as groundwater depletion, soil fertility loss and waterlogging and salinity - all of which can reduce the productive capacity and growth potential of agriculture over the long-term. A classical example is the rice-wheat system in Northwestern India replacing traditional crops like pulses, oilseeds and cotton.

CONCLUSION

India, being a vast country of continental dimensions, presents wide variations in agroclimatic conditions. Such variations have led to the evolution of regional niches for various crops. Historically, regions were often associated with the crops in which they specialize for various agronomic, climatic, hydro-geological, and even, historical reasons. But, in the aftermath of technological changes encompassing bio-chemical and irrigation technologies, the agronomic niches are undergoing significant changes. With the advent of irrigation and new farm technologies, the yield level of most crops-especially that of cereals-has witnessed an upward shift making it possible to obtain a given level of output with reduced area or more output with a given level of area and creating thereby the condition for inter-crop area shift (diversification) without much disturbance in output level. Besides, as agriculture become drought proof and growth become more regionally balanced, there has been a reduction in the instability of agricultural output.

Although these reverse area shifts actually took place in the mid-1970's as a part of the process of commercialization, they became more pronounced since the mid 1980's as a response partly to emerging supply deficit in edible oils and partly to the changing comparative advantage of crops. Since the recent trend in inter-crop area shifts has it origin in the price and trade policy changes of the 1980's, they indicate the increasing market influence on area allocation. The area under commercial crops has almost doubled in the last three decades. Among the foodgrain crops, the area under superior cereals, i.e., rice and wheat, is increasing; while that of coarse cereals (millets) is on decline. The area share of jute and allied fibres has also gone down substantially. Like any other economy, the share of agriculture in the GDP is also declining in India. Increase in income from the agriculture sector, further growth of non-crop sub-sectors within agriculture; faster growth of non-food grain crops; and faster growth of superior cereals among the food grains are all happening, but the pace of such change is far too slow. An accelerated pace of diversification to create positive import of higher income, higher employment and conservation and efficient use of natural resources emphasizes the need for efficient policies, especially in technological development, selective economic reforms and institutional change. A strategy of crucial importance is growth enhancing non-farm activities. This calls for investment in rural infrastructure and skill upgradation and it also implies a careful examination and adjustment of macro-policies, which influence the relative profitability of different activities and in turn determine the nature and pace of diversification. In order to ensure social equity, policies on structural adjustment and reforms must pay special attention to the band of marginal and small farmers and agricultural labourers. The direct benefits from diversification should reach these sections of the farmers.

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INDIAN COUNCIL OF HISTORICAL RESEARCH
35, Ferozeshah Road, New Delhi-110 001

F.NO: 8-60/2021/Seminar

31st December, 2021.

From:

Dr. Pravin Kumar Sharma
Assistant Director (Research)
Ph. No 011-23009540
Fax No.23383421
Email id: seminar@ichr.ac.in

To,

Dr. Ajeet Kumar Rai,
Assistant Professor,
Saradar Vallabh bhai Patel College,
Dept. of History, Bhabhua,
Kaimur, Bihar – 821101.

Sub: Intimation letter & Undertaking

Dear Sir/Madam,

Please refer to your request for financial assistance for holding Seminar / Conference / Workshop / Congress / Symposia on आजाद हिन्द फ़ौज और प्रवासी भारतीयों का प्रतिरोध और राष्ट्रीय चेतना. Your request was placed before the Sub Committee meeting for the award of Annual Conference/Seminars/Workshops Grant held on 9th December, 2021. The Minutes of the Sub-Committee meeting have been approved by the 166th meeting of Research Projects Committee held on 10th December, 2021. The decision of the Committee is as follows:

The Committee recommended a sum of Rs. 3,00,000/- (Rupees Three Lac only). Further, the Committee decided to obtain four full papers, eight abstracts and list of resource person from the organiser within 30-days from the issuance of the intimation letter before releasing the grant. Moreover, the Committee authorized the Member Secretary to nominate the observers (Two ICHR' Officers) for the event.

In view of the above decision the undersigned has been directed to request you to submit the above cited information through proper channel. Further, You are hereby requested to send a formal invitation letter to the Observers. The travel allowances and local hospitality of the Observers shall be taken care by the host institution/organization. You are requested to immediately submit the following documents to enable us to process the file for the release of grant:

1. You are requested to furnish **seriatim reply** to the queries mentioned below. The seriatim reply should be furnished on the letter head of the institution.

Continue..

(a) Whether the grant is acceptable to you? If so, send a copy of the programme and the list of participants;

(b) Whether you are in receipt of any financial assistance from any other source: **Yes/No**. If yes, give the name of funding organization with the grant amount: **Rs................./-**

(c) Whether you have received any grant from the Council earlier: **Yes/No**. If yes, give particulars i.e., state whether previous accounts have been settled or not? **(Mention File No.)**

(d) You are requested to send two copies of the proceedings or a detailed report of 2000 words with copies of the papers presented at the seminar for our record.

2. Bank Details of **Financial Authority i.e. Registrar / Treasurer / Secretary / Local Secretary/Principal/President** for Electronic Transfer of Grant in the following format: *Account Number; Name of the Account Holder; Name of the Bank; Branch Address; IFSC Code along-with a Cancelled Cheque.*

3. After receiving the 1ˢᵗ installment by the Organizer, the following documents must be submitted within four months from the date of the event to the Seminar Unit for the release of 20 % withheld grant, failing which the organisers have to refund the entire grant to the ICHR and, besides this, will be debarred from the award of any such grant in future, and make themselves liable to legal action.

    i) Statement of Expenditure*;
    ii) Utilization Certificate*;
    iii) Copy of Proceedings/Copies of Papers Presented (2 sets in hard binding);
    iv) Detailed Report (about 2000 words);
    v) List of Participants;
    vi) News Papers Clippings and Photographs.

*Utilization Certificate means a duly audited utilization certificate which should be submitted by Coordinator / Organization of *Seminar / Congress / Conference / Symposia / Workshop* in accordance with the Proforma contained in which must be on the letter head of the institution and signed by the Convener and Financial Authority (With Seal) of Institution (Principal of College or Registrar of University) and Signature (With Seal) of the Finance Officer / Auditor / Accounts Officer (in case of Govt. Office / Department or College or University recognized by UGC / Chartered Accountant (In case of Organization or Individual). *The format of the same is available on our website: www.ichr.ac.in*

*Statement of Expenditure in respect of all grants except Fellowships means a statement of Income & Expenditure, which must be on the *Letter Head* of the institution and signed by the Convener and Financial Authority (With Seal) of Institution (Principal of College or Registrar of University) and Signature (With Seal) of the Finance Officer / Auditor / Accounts Officer (In case of Govt. Office / Department or College or University recognized by UGC) / Chartered Accountant (In case of Organizations or Individuals) with the certification that "I have satisfied myself that the Statement of Expenditure is accurate, results from reliable accounting systems and is based on verifiable supporting documents". *The format of the same is available on our website: www.ichr.ac.in*

4. The un-spent balance, if any, should be refunded to the Council within one month of the event.
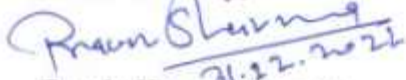
5. In case the Seminar / Conference / Workshop / Congress / Symposia is/are already held, send the above mentioned / required documents at the earliest to enable us to release of the entire grant.

6. In case the Organizer does not require the second Installment, the Organizer will have to submit the documents mentioned at (4) to close the file.

7. On receipt of aforementioned information, the grant shall be released as per rules of the Council and you have to abide by the above conditions.

8. Please Note the Followings:

   i) *The Grant from the ICHR should be prominently acknowledged at the time of completing Seminar / Conference / Workshop / Congress / Symposia in the Proceedings (as funded by ICHR.)*

   ii) *If the applicant does not comply with the points of the grant, she/he will have to refund the entire amount of the grant within two month of the date of the Symposia / Conference / Workshop / Congress / Symposia.*

   iii) *Kindly quote the File No. for Future Correspondence / Inquiry.*

With kind regards,

Yours Faithfully,

(Pravin Kumar Sharma)

Note:

As per the 144th meeting of the Research Projects Committee (RPC)of the ICHR held on 10.03.2016 it is hereby informed to the organizers that it is mandatory *to use the Council's Official Logo for display* and to mention that '*This Programme is sponsored by the Indian Council of Historical Research, New Delhi*'.

LETTER • OPEN ACCESS

A unifying framework for BRST and BRST-related symmetries

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A unifying framework for BRST and BRST-related symmetries

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Abstract – We propose a general framework to study BRST-related transformations. We investigate different forms of BRST and BRST-related symmetries, realized within a prototypical first-class system, including ordinary BRST, anti-BRST, dual-BRST, anti-dual-BRST and additional sets of new BRST-related symmetries. We identify a precise $\mathbb{Z}_4 \times \mathbb{Z}_2$ discrete group of symmetries of the ghost sector, responsible for connecting the various forms of BRST-related transformations. Their distinct roles in different Hamiltonian and Lagrangian approaches are clarified. As a unifying framework, we use a gauge invariant prototypical first-class system encompassing an extensive class of physical models.

Introduction. – One of the most prominent symmetries in physics, the fundamental Becchi-Rouet-Stora-Tyutin (BRST) transformation mixing physical fields with the anticommuting Faddeev-Popov ghosts has been introduced in the early seminal works of Becchi, Rouet, Stora and Tyutin [1–4]. Following that original BRST symmetry, by interchanging ghosts and anti-ghosts, a similar transformation was soon reported in the literature [5–7] generating what came to be known as *anti*-BRST symmetry [8–10]. On the other hand, the *dual*-BRST first appeared as a nonlocal noncovariant symmetry in QED [11], with more polished local covariant versions in [12,13] and has been initially criticized as being nothing more than a disguised ordinary BRST symmetry [14–17]. Their algebraic independence became more clear when Malik and collaborators constructed a consistent Hodge theory framework housing all of them on firm mathematical grounds [18–25]. In the present letter, we clarify the roles, similarities, differences and further properties of the four mentioned symmetries (BRST, anti-BRST, dual-BRST, anti-dual-BRST), an associated bosonic symmetry corresponding to the Laplacian operator in Hodge theory, as well as new sets of BRST-related symmetry transformations involving the Lagrange multiplier and ghost sectors within a concise prototype general gauge-invariant model.

In this way, we isolate the main features of those symmetries in a model-independent way.

Our prototypical system comes from the generalization of the model first presented in ref. [26], in which we include an open potential function $V(q^k)$ enlarging its applicability by allowing additional dynamics. This model can directly reproduce many others as particular cases, both mechanical [27–30] and field theoretical ones [26,31,32], and also enjoys a strong similarity with other gauge field models [28]. In ref. [28], the rigid rotor was used to convey a deep analogy with QED and QCD, mainly regarding its (anti-)BRST symmetry aspects. However, in [28] it was not so clear how a classical rigid rotor could be embodied with gauge symmetries. That explanation in a systematic form for a generalized quantum rigid rotor can be seen in [26], where a construction of a gauge-invariant potential obtained along the Faddeev-Jackiw-BarcelosNeto-Wotzasek (FJBW) symplectic algorithm is shown. Hence, we construct a unifying framework for considering BRST and BRST-related symmetries, where all their subtleties can be worked out and clarified and in which new BRST-related symmetries naturally emerge. For the reader's convenience, the present letter is organized as follows. In the next section below, we present our prototypical first-class system and perform its BFV quantization, calculating the Green's functions generating functional. In the third section, we obtain other forms

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of BRST transformations corresponding to the (anti-) (dual-)BRST symmetries of the quantum action and show how those symmetries can be obtained from each other by composing operations from a discrete group of symmetries of the action. In the fourth section, we show that the configuration space version of the previous BRST-related symmetries clearly distinguishes the dual form —while the BRST and anti-BRST transformations leave the classical action invariant, the dual-BRST and anti-dual-BRST ones leave the gauge-fixing term invariant. In the fifth section, we discuss the algebra obtained from the BRST charge operators and obtain a corresponding bosonic symmetry associated to the Casimir operator of that algebra. The sixth section is reserved for the report of new BRST-related symmetries. We end in the last section with our conclusion and final remarks.

BFV generating functional and ordinary BRST symmetry. – Consider a prototypical first-class gauge-invariant dynamical system described by the generalized canonical coordinates (q^0, q^k, p_k), with $k = 1, \ldots, n$, defined by the Hamiltonian function

$$H = U(q^k, p_k) + V(q^k) + q^0 T(q^k), \qquad (1)$$

where $V(q^k)$ and $T(q^k)$ denote two given differentiable real functions. The former represents an arbitrary physical potential, while the latter characterizes a first-class constraint condition imposed along the system dynamical evolution. Still in eq. (1), we define further [26]

$$U(q^k, p_k) \equiv \frac{R^{ijkl} T_i T_j p_k p_l}{2 f^{ij} T_i T_j}, \qquad (2)$$
$$R^{ijkl}(q^m) \equiv f^{ij} f^{kl} - f^{ik} f^{jl},$$

with $f^{ij} = f^{ij}(q^k)$ denoting a symmetric nondegenerated two-form and T_i standing for the partial derivative of T with respect to q^i. The system (1) can be easily extended to field theory models by considering DeWitt notation, in which the Latin indexes carry also a continuous space dependence and the discrete summations include also spatial integrations.

Corresponding to the first-class constraints $T(q^k)$ and p_0, we introduce a pair of Grassmann anticommuting ghosts variables $(\mathcal{C}, \bar{\mathcal{C}})$ along with their respective canonically conjugated momenta $(\mathcal{P}, \bar{\mathcal{P}})$ with ghost numbers $\text{gh}\,\mathcal{C} = \text{gh}\,\bar{\mathcal{P}} = 1 = -\text{gh}\,\bar{\mathcal{C}} = -\text{gh}\,\mathcal{P}$, and define the extended phase space as

$$z^A \equiv (q^\mu, \mathcal{C}, \bar{\mathcal{C}}, p_\mu, \mathcal{P}, \bar{\mathcal{P}}), \quad \mu = 0, k. \qquad (3)$$

Hence, the generating functional can be written in the extended phase space as

$$Z_\Psi = \int \mathcal{D}z^A \, \exp(iS_{eff}), \qquad (4)$$

in terms of the effective action

$$S_{eff} \equiv \int \mathrm{d}t (\dot{q}^i p_i + \dot{q}^0 p_0 + \dot{\mathcal{C}}\mathcal{P} + \dot{\bar{\mathcal{C}}}\bar{\mathcal{P}} - H_\Psi), \qquad (5)$$

and extended Hamiltonian

$$H_\Psi = U(q^k, p_k) + V(q^k) + \{\Omega, \Psi\}, \qquad (6)$$

with Ω and Ψ denoting respectively the BRST charge and gauge-fixing fermion in the extended phase space. The curly brackets in (6) stand for the generalized Poisson (anti-)brackets binary operation, defined for two given functions $F(z^A)$ and $G(z^A)$ as

$$\{F, G\} = \frac{\partial^R F}{\partial z^A} \{z^A, z^B\} \frac{\partial^L G}{\partial z^B} \qquad (7)$$

in terms of the non-null fundamental bracket relations

$$\{q^\mu, p_\nu\} = \delta^\mu_\nu, \quad \{\mathcal{C}, \mathcal{P}\} = \{\bar{\mathcal{C}}, \bar{\mathcal{P}}\} = -1. \qquad (8)$$

At quantum level, we promote all generalized coordinates from the extended phase space, including auxiliary and ghost variables, to linear operators acting on a Hilbert space satisfying fundamental (anti-)commutation relations directly obtained from (8) with $\hbar = 1$ as

$$[q^k, p_l] = i\,\delta^k_l, \quad [\mathcal{C}, \mathcal{P}] = -i, \qquad (9)$$
$$[q^0, p_0] = i, \quad [\bar{\mathcal{C}}, \bar{\mathcal{P}}] = -i,$$

with the general definition

$$[A, B] = AB - (-1)^{\epsilon_A \epsilon_B} BA \qquad (10)$$

for two operators A and B with Grassmann parities ϵ_A and ϵ_B. The quantum BRST charge in the extended Hamiltonian phase space Ω_b, the operatorial version of Ω in eq. (6), can be written as

$$\Omega_b = i \left(\mathcal{C}T(q^k) + \mathcal{P}p_0 \right), \qquad (11)$$

and is responsible for generating the ordinary BRST symmetry. For the fundamental variables, we have

$$\delta_b q^i = 0, \quad \delta_b q^0 = -\mathcal{P}, \quad \delta_b \mathcal{C} = 0, \quad \delta_b \bar{\mathcal{C}} = p_0,$$
$$\delta_b p_i = \mathcal{C}T_i, \quad \delta_b p_0 = 0, \quad \delta_b \bar{\mathcal{P}} = T, \quad \delta_b \mathcal{P} = 0. \qquad (12)$$

The BRST charge Ω_b has ghost number $+1$ and is nilpotent. As a direct consequence, the transformations (12) are off-shell closed.

Following ref. [33], we choose the ghost dependence of the gauge-fixing fermion as

$$\Psi = \mathcal{P}q^0 + \bar{\mathcal{C}}\chi, \qquad (13)$$

where $\chi = \chi(q^k, p_k, q^0, p_0)$ denotes a ghost-independent open function, and write the quantum BRST invariant Hamiltonian as

$$\hat{H} = U + V + q^0 T + p_0 \chi + i\mathcal{C}[T, \chi]\bar{\mathcal{C}} + i\mathcal{P}[p_0, \chi]\bar{\mathcal{C}} + \mathcal{P}\bar{\mathcal{P}}. \qquad (14)$$

It can be immediately checked that the nilpotent ordinary BRST transformations (12) leave the Hamiltonian (14) invariant.

In order to have a nice working action and define a consistent framework for a later systematical discussion of various forms of BRST and BRST-related symmetries, particularly ready for comparison with previous studied cases in the literature, we consider next the standard

gauge function

$$\chi = \vartheta^{-1}B + \frac{\xi}{2}p_0, \quad \text{with} \tag{15}$$

$$B \equiv f^{ij}T_i p_j \quad \text{and} \quad \vartheta \equiv \omega^{-2}f^{ij}T_i T_j.$$

In the last equation above, we have introduced the quantity ω for dimensional consistency. Since it enters through the gauge-fixing, it does not affect the physical results. Indeed, it will prove very useful for the construction of new symmetries and their comparisons, keeping track of the right dimensions throughout calculations. It could be argued that ω introduces a scale, however, besides being allowed to take an arbitrary value for proper gauge-fixing, its time inverse physical dimension can be achieved by a combination of physical constants and parameters coming from the potential functions present in (1) characterizing the specific working model. Hence, the specific standard form (15) leads to the extended gauge-fixed action

$$S_{ext} = \int dt \left(\dot{q}^i p_i + \dot{\mathcal{C}}\bar{\mathcal{P}} + \dot{\bar{\mathcal{C}}}\mathcal{P} - U(q^k, p_k) - V(q^k) \right.$$
$$\left. - q^0 T(q^k) - \frac{\xi}{2}p_0^2 + p_0(\dot{q}^0 - \vartheta^{-1}B) + \omega^2\mathcal{C}\bar{\mathcal{C}} - \mathcal{P}\bar{\mathcal{P}} \right), \tag{16}$$

in which ξ represents a control gauge-fixing parameter. We may compare the gauge choice (15) to the R_ξ gauges commonly used in QED and QCD, in which we have the limits of ξ tending to 0, 1, 3 and ∞ corresponding respectively to the Landau, Feynman-'t Hooft, Fried-Yennie and unitary gauges.

A set of BRST-related symmetries —Hamiltonian approach. – Still in the extended phase space, additionally to the ordinary BRST symmetry (12), we have other BRST-related symmetries enjoyed by action (16). It can be seen by direct inspection that the three transformation sets

$$\text{anti-BRST:} \quad \begin{aligned} \bar{\delta}_b q^i &= 0, & \bar{\delta}_b q^0 &= -\bar{\mathcal{P}}, \\ \bar{\delta}_b p_i &= -\mathcal{C}T_i, & \bar{\delta}_b p_0 &= 0, \\ \bar{\delta}_b \mathcal{C} &= p_0, & \bar{\delta}_b \bar{\mathcal{C}} &= 0, \\ \bar{\delta}_b \mathcal{P} &= 0, & \bar{\delta}_b \bar{\mathcal{P}} &= -T, \end{aligned} \tag{17}$$

$$\text{dual-BRST:} \quad \begin{aligned} \bar{\delta}_d q^i &= 0, & \bar{\delta}_d q^0 &= -\omega\bar{\mathcal{C}}, \\ \bar{\delta}_d p_i &= \omega^{-1}\mathcal{P}T_i, & \bar{\delta}_d p_0 &= 0, \\ \bar{\delta}_d \mathcal{C} &= \omega^{-1}T, & \bar{\delta}_d \bar{\mathcal{C}} &= 0, \\ \bar{\delta}_d \mathcal{P} &= 0, & \bar{\delta}_d \bar{\mathcal{P}} &= \omega p_0, \end{aligned} \tag{18}$$

$$\text{anti-dual-BRST:} \quad \begin{aligned} \delta_d q^i &= 0, & \delta_d q^0 &= -\omega\mathcal{C}, \\ \delta_d p_i &= -\omega^{-1}\mathcal{P}T_i, & \delta_d p_0 &= 0, \\ \delta_d \mathcal{C} &= 0, & \delta_d \bar{\mathcal{C}} &= -\omega^{-1}T, \\ \delta_d \bar{\mathcal{P}} &= \omega p_0, & \delta_d \mathcal{P} &= 0, \end{aligned} \tag{19}$$

leave the extended action (16) invariant. The above transformations (17), (18) and (19) are respectively generated by the charges

$$\Omega_b = i\left(-\mathcal{C}T(q^k) + \mathcal{P}p_0\right), \quad \Omega_d = i\left(\omega^{-1}\mathcal{P}T(q^k) + \omega\mathcal{C}p_0\right),$$
$$\Omega_d = i\left(-\omega^{-1}\mathcal{P}T(q^k) + \omega\mathcal{C}p_0\right), \tag{20}$$

with ghost numbers

$$\text{gh}\,\Omega_b = \text{gh}\,\Omega_d = -1, \quad \text{gh}\,\Omega_d = +1, \tag{21}$$

and, similarly to (12), are off-shell nilpotent. Consequently, the corresponding symmetries are off-shell closed. The two dual-symmetries $\bar{\delta}_d$ and δ_d can be obtained respectively from δ_b and $\bar{\delta}_b$ by the shifting

$$a: \quad \mathcal{C} \longrightarrow \omega^{-1}\mathcal{P}, \quad \bar{\mathcal{C}} \longrightarrow \omega^{-1}\bar{\mathcal{P}}, \quad \mathcal{P} \longrightarrow \omega\mathcal{C}, \quad \bar{\mathcal{P}} \longrightarrow \omega\bar{\mathcal{C}},$$
$$\text{(anti-)BRST} \longrightarrow \text{(anti-)dual-BRST}, \tag{22}$$

whilst the anti-symmetries $\bar{\delta}_b$ and δ_d can be generated respectively from δ_b and $\bar{\delta}_d$ by

$$b: \quad \mathcal{C} \longrightarrow -\mathcal{C}, \quad \bar{\mathcal{C}} \longrightarrow \bar{\mathcal{C}}, \quad \mathcal{P} \longrightarrow \mathcal{P}, \quad \bar{\mathcal{P}} \longrightarrow -\bar{\mathcal{P}},$$
$$\text{(dual-)BRST} \longrightarrow \text{(dual-)anti-BRST}. \tag{23}$$

It turns out that action (16) is invariant with respect to the group $\mathbb{Z}_4 \times \mathbb{Z}_2$ of discrete permutations among the ghost variables. More precisely, the transformations (22) and (23) can be concretely taken as the two generators, respectively a and b, for the $\mathbb{Z}_4 \times \mathbb{Z}_2$ group presentation given by

$$\mathbb{Z}_4 \times \mathbb{Z}_2 = \langle a, b \,|\, a^2 = b^4 = e, ab = ba \rangle. \tag{24}$$

That is a symmetry group of order eight, whose elements give rise to the transformations $\pm$BRST, $\pm$anti-BRST, $\pm$dual-BRST, $\pm$anti-dual-BRST. The finite group (24) characterizes all possible dimensionally consistent permutations among the ghost fields $(\mathcal{C}, \bar{\mathcal{C}}, \omega^{-1}\mathcal{P}, \omega^{-1}\bar{\mathcal{P}})$ resulting in canonical transformations preserving the fundamental relations (9). The same happens with any BRST-invariant action, the corresponding ghost permutation group of symmetries of the action produces other BRST-related symmetries and can be used as a criterion to span all possibilities. Thus, in a sense, the ghost permutation group describes a *symmetry of symmetries*. As an illustration, we mention here the known fact that quadratic gauges in QCD lead to actions without anti-BRST invariance [34], which can be understood from the lack of that symmetry in the corresponding group of ghost fields permutations. In the present case, by plugging (15) into (14), we obtain the quantum Hamiltonian

$$\mathcal{H} = U + V + q^0 T + \frac{\xi}{2}p_0^2 + p_0\vartheta^{-1}B - \omega^2\mathcal{C}\bar{\mathcal{C}} + \mathcal{P}\bar{\mathcal{P}} \tag{25}$$

explicitly invariant under the ghosts permutations group (24) and which, consequently, can be checked to respect the previous symmetries (12), (17), (18) and (19). Therefore the cohomology classes generated by charges (11) and (20) produce the corresponding BRST-related closed and exact states. In particular, the zero

ghost number physical states $|phys\rangle$ are defined by the annihilation property

$$0 = \Omega_b|phys\rangle = \bar{\Omega}_b|phys\rangle = \Omega_d|phys\rangle = \bar{\Omega}_d|phys\rangle. \quad (26)$$

We remark that all previous symmetries occur in the extended phase space in terms of a Hamiltonian approach. Nevertheless, their original discovery can be clearly retrieved on the past literature within somewhat different contexts, namely, ordinary BRST [1–4], anti-BRST [5–7] and dual-BRST [11–13,35–37]. Here, we see all of them interconnected within a systematic unified treatment. Usually, genuine dual-BRST transformations are characterized by the invariance of the gauge-fixing term. In the present case however, by defining

$$S_{gf} \equiv \int dt \left(p_0(\dot{q}^0 - \vartheta^{-1}B) - \frac{\xi}{2}p_0^2 \right) \quad (27)$$

we have the variations

$$\bar{\delta}_d S_{gf} = -\omega \int dt\, p_0(\dot{\mathcal{C}} + \mathcal{P}) \quad \text{and}$$

$$\delta_d S_{gf} = \omega \int dt\, p_0(\mathcal{P} - \dot{\mathcal{C}}). \quad (28)$$

In fact, in order to have the well-known elegant interpretation corresponding to the plain invariances of the classical action and gauge-fixing terms respectively under (anti-)BRST and (anti-)dual-BRST transformations, we have to turn to a Lagrangian context.

BRST symmetries in configuration space. – In this section, we investigate further the various BRST and BRST-related symmetries of the prototypical system (1) from a gauge-fixed Lagrangian viewpoint. Concerning the momenta variable p_0, we see that it appears in the action (16) only through the gauge-fixing term S_{gf} defined in (27). Performing a functional integration over p_0 would bring down an expression of the form

$$\frac{1}{2\xi}\left(\dot{q}^0 - \vartheta^{-1}B\right)^2 \quad (29)$$

which, as argued by the end of the second section, can be compared to the usual quadratic covariant gauge-fixing term present in the QED and QCD quantum Lagrangians. However, as is well known, the presence of this term spoils the off-shell nilpotency of the BRST symmetries which become closed only by means of the equations of motion, *i.e.*, on shell. It is clear that p_0 plays the role of a Nakanishi-Lautrup variable and should remain alive in the theory for the sake of off-shell BRST closure. Therefore, we perform the functional integration of (4) in the ghost momenta variables $\mathcal{P}$ and $\bar{\mathcal{P}}$, after which we obtain a neat first-order action in the exponential argument of Z_Ψ given by

$$S = \int dt \left(\dot{q}^i p_i - \dot{\mathcal{C}}\dot{\bar{\mathcal{C}}} - U(q^k, p_k) - V(q^k) - q^0 T(q^k) \right.$$
$$\left. - \frac{\xi}{2}p_0^2 + p_0(\dot{q}^0 - \vartheta^{-1}B) + \omega^2 \mathcal{C}\bar{\mathcal{C}} \right). \quad (30)$$

To that extent, after the $\mathcal{P}$ and $\bar{\mathcal{P}}$ functional integrations, the symmetries and respective conserved charges of the new concise action (30) corresponding to eqs. (12) and (17) to (20) become

$$\text{ordinary BRST:} \quad \begin{aligned} s_b q^i &= 0, & s_b q^0 &= -\dot{\mathcal{C}}, \\ s_b p_i &= \mathcal{C}T_i, & s_b p_0 &= 0, \\ s_b \mathcal{C} &= 0, \\ s_b \bar{\mathcal{C}} &= p_0, \end{aligned} \quad (31)$$

$$\text{anti-BRST:} \quad \begin{aligned} \bar{s}_b q^i &= 0, & \bar{s}_b q^0 &= \dot{\bar{\mathcal{C}}}, \\ \bar{s}_b p_i &= -\bar{\mathcal{C}}T_i, & \bar{s}_b p_0 &= 0, \\ \bar{s}_b \mathcal{C} &= p_0, \\ \bar{s}_b \bar{\mathcal{C}} &= 0, \end{aligned} \quad (32)$$

$$\text{dual-BRST:} \quad \begin{aligned} \bar{s}_d q^i &= 0, & \bar{s}_d q^0 &= -\omega\bar{\mathcal{C}}, \\ \bar{s}_d p_i &= -\omega^{-1}\dot{\bar{\mathcal{C}}}T_i, & \bar{s}_d p_0 &= 0, \\ \bar{s}_d \mathcal{C} &= \omega^{-1}T, \\ \bar{s}_d \bar{\mathcal{C}} &= 0, \end{aligned} \quad (33)$$

$$\text{anti-dual-BRST:} \quad \begin{aligned} s_d q^i &= 0, & s_d q^0 &= -\omega\mathcal{C}, \\ s_d p_i &= -\omega^{-1}\dot{\mathcal{C}}T_i, & s_d p_0 &= 0, \\ s_d \mathcal{C} &= 0, \\ s_d \bar{\mathcal{C}} &= -\omega^{-1}T, \end{aligned} \quad (34)$$

with respective charges

$$\begin{aligned} Q_b &= i(\mathcal{C}T + \dot{\mathcal{C}}p_0), & Q_b &= -i(\mathcal{C}T + \dot{\mathcal{C}}p_0), \\ \bar{Q}_d &= i(-\omega^{-1}\dot{\bar{\mathcal{C}}}T + \omega\bar{\mathcal{C}}p_0), & Q_d &= i(-\omega^{-1}\dot{\mathcal{C}}T + \omega\mathcal{C}p_0). \end{aligned} \quad (35)$$

The above transformations are off-shell nilpotent and each one of them can be checked to characterize a particular symmetry of the action (30). Furthermore, now the two dual-BRST symmetries do leave the gauge-fixing term invariant. Indeed, while the ordinary BRST and anti-BRST transformations leave the original classical action invariant, with the variation of the gauge-fixing term being canceled by the necessary ghost terms, the dual and anti-dual BRST transformations leave the gauge-fixing term invariant by itself, with a mutual cancellation between the variations coming from the classical Lagrangian and ghost terms. That means we have

$$s_b S_c = \bar{s}_b S_c = 0 \quad \text{and} \quad \bar{s}_d S_{gf} = s_d S_{gf} = 0, \quad (36)$$

with

$$S_c \equiv \int dt \{ \dot{q}^i p_i - U(q^k, p_k) - V(q^k) - q^0 T(q^k) \} \quad (37)$$

representing the classical action and the ghost-fixing term S_{gf} given by eq. (27). Along this line, in BRST-cohomology terms, we understand the BRST invariances of the action S in the sense that it can be decomposed as a sum between a BRST-exact and a BRST-closed parts. This assertion holds for each one of the four BRST symmetries, including the dual ones, as we may conveniently rewrite (30) in one of the two equivalent forms below,

$$S = \int dt \Big\{ \dot{q}^i p_i - U(q^k, p_k) - V(q^k) - q^0 T(q^k)$$
$$+ \frac{1}{2} s_b \bar{s}_b \left[\xi \mathcal{C}\bar{\mathcal{C}} - (q^0)^2 - \omega^{-2} \vartheta^{-2} B^2 \right] \Big\} \quad (38)$$

or

$$S = \int dt \Big\{ -U(q^k, p_k) - V(q^k) - \frac{\xi}{2} p_0^2 + p_0 (\dot{q}^0 - \vartheta^{-1} B)$$
$$+ \frac{1}{2} s_d \bar{s}_d \left[\left(\frac{\omega \dot{q}^i p_i}{T} \right)^2 - (q^0)^2 \right] \Big\}. \quad (39)$$

This represents an important feature distinghishing the (anti-)BRST from the (anti-)dual-BRST symmetries.

BRST algebra. – In this section we investigate the Lie superalgebra generated by the previous BRST charges. We start by recalling that all four introduced BRST charges (35) are fermionic operators and fully off-shell nilpotent, i.e.,

$$Q_b^2 = \bar{Q}_b^2 = \bar{Q}_d^2 = Q_d^2 = 0. \quad (40)$$

All BRST charges are conserved under time evolution modulo equations of motion. We may additionally introduce a ghost number operator given by

$$\mathcal{G} = i(\dot{\mathcal{C}}\bar{\mathcal{C}} - \mathcal{C}\dot{\bar{\mathcal{C}}}), \quad (41)$$

satisfying

$$[\mathcal{G}, Q_b] = Q_b, \qquad [\mathcal{G}, \bar{Q}_b] = -\bar{Q}_b,$$
$$[\mathcal{G}, \bar{Q}_d] = -\bar{Q}_d, \qquad [\mathcal{G}, Q_d] = Q_d. \quad (42)$$

Ghost number conservation is then warranted by the global scale symmetry

$$\mathcal{C} \longrightarrow e^\lambda \mathcal{C}, \qquad \bar{\mathcal{C}} \longrightarrow e^{-\lambda} \bar{\mathcal{C}}, \quad (43)$$

with λ denoting a continuous constant parameter. Indeed, transformations (43) clearly leave the quantum action (30) invariant, while time conservation of (41) follows directly from the equations of motion.

The two (anti-)BRST operators and the (anti-)dual-BRST ones satisfy

$$[Q_b, \bar{Q}_b] = 0, \qquad [Q_d, \bar{Q}_d] = 0,$$
$$[Q_b, \bar{Q}_d] = [\bar{Q}_b, Q_d] = i(\omega^{-1} T^2 + \omega p_0^2) \equiv 2\mathcal{W}. \quad (44)$$

The above-defined quantity $\mathcal{W}$ represents a Casimir operator for the superalgebra generated by the BRST charges and gives rise to a new bosonic transformation defined for

an arbitrary function F as

$$s_W F \equiv [F, \mathcal{W}]. \quad (45)$$

For the fundamental variables of the theory, the non-null s_W tranformations read explicitly

$$s_W p_i = \omega^{-1} T T_i, \qquad s_W q^0 = -\omega p_0, \quad (46)$$

and constitute a further symmetry leaving (30) invariant.

New symmetries. – In none of the previously seen symmetries does the Nakanishi-Lautrup variable p_0 transform. Inspired by the fact that the gauge-fixing term (27) is left invariant under the substitution

$$p_0 \rightarrow -p_0 + \frac{2(\dot{q}^0 - \vartheta^{-1} B)}{\xi}, \quad (47)$$

it is possible to look for correspondingly new forms of BRST transformations involving p_0. Accordingly, in the same fashion as the particular models discussed in refs. [38–40], the quantum action (30) enjoys the further nilpotent symmetries

$$\Delta_1 p_i = \mathcal{C} T_i, \qquad \Delta_1 p_0 = -\frac{2}{\xi}(\omega^2 \mathcal{C} + \ddot{\mathcal{C}}),$$
$$\Delta_1 q^0 = -\dot{\mathcal{C}}, \qquad \Delta_1 \mathcal{C} = -p_0 + \frac{2}{\xi}(\dot{q}^0 - \vartheta^{-1} B), \quad (48)$$

of ghost number 1 and its corresponding anti version

$$\bar{\Delta}_1 p_i = -\bar{\mathcal{C}} T_i, \qquad \bar{\Delta}_1 p_0 = \frac{2}{\xi}(\omega^2 \bar{\mathcal{C}} + \ddot{\bar{\mathcal{C}}}),$$
$$\bar{\Delta}_1 q^0 = \dot{\bar{\mathcal{C}}}, \qquad \bar{\Delta}_1 \mathcal{C} = p_0 - \frac{2}{\xi}(\dot{q}^0 - \vartheta^{-1} B), \quad (49)$$

of ghost number -1.

Additionally, we report here two brand new sets of non-local symmetries for action (30) with ghost numbers 1 and -1 given, respectively, by

$$\Delta_2 p_0 = \frac{1}{\xi}(\omega^2 \mathcal{C} + \ddot{\mathcal{C}}), \qquad \Delta_2 q^0 = \frac{1}{2}\dot{\mathcal{C}} + \frac{\omega^2}{2} \int \mathcal{C} \, dt,$$
$$\Delta_2 \mathcal{C} = \frac{1}{2} p_0 - \frac{1}{\xi}(\dot{q}^0 - \vartheta^{-1} B) - \frac{1}{2} \int T \, dt, \quad (50)$$

and

$$\bar{\Delta}_2 p_0 = -\frac{1}{\xi}(\omega^2 \bar{\mathcal{C}} + \ddot{\bar{\mathcal{C}}}), \qquad \bar{\Delta}_2 q^0 = -\frac{1}{2}\dot{\bar{\mathcal{C}}} - \frac{\omega^2}{2} \int \bar{\mathcal{C}} \, dt,$$
$$\bar{\Delta}_2 \mathcal{C} = \frac{1}{2} p_0 - \frac{1}{\xi}(\dot{q}^0 - \vartheta^{-1} B) - \frac{1}{2} \int T \, dt. \quad (51)$$

The above Δ_2 symmetries are clearly distinct from the Δ_1 ones, as the former do not affect p_i, i.e.,

$$\Delta_2 p_i = \bar{\Delta}_2 p_i = 0, \quad (52)$$

while the latter contains terms corresponding to integrals of T and $\mathcal{C}$. A comparative analysis of the Δ symmetries as well as its relevance in specific quantum field theory models is currently under investigation.

Conclusion. – The quantization of the prototypical first-class system along the functional BFV procedure has allowed us to realize a considerable set of forms of BRST-related transformations constituting symmetries at quantum level. Those symmetries comprised not just the ordinary BRST ones but included also the dual- or co-BRST ones which have appeared in the literature in a plethora of different contexts in field theory. By clarifying the action of a discrete group of transformations on the ghosts sector, we have seen that the dual- and anti-BRST symmetries can be freely interchanged among a total of eight possibilities connected by canonical transformations in a Hamiltonian framework. When coming to a gauge-fixed Lagrangian approach, the dual-BRST symmetries achieve its full glorious interpretation, displaying its main characteristic of leaving the gauge-fixing term invariant. Further, the BRST charges exhibit the Hodge theory properties and it is possible to define a Casimir operator leading to an extra bosonic symmetry closing a Lie superalgebra among the conserved symmetry generators. The brand new forms of BRST-related symmetries reported are currently under further analysis.

* * *

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प्रियंका कुमारी मिश्रा

शोध छात्रा
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वाराणसी

शिवमूर्ति आधुनिक हिन्दी कथा साहित्य में एक ऐसे उगते सूरज के समान हैं। जिन्होंने अपनी रचना संसार की रोशनी से समकालीन हिन्दी कथा साहित्य को दीप्तिमान कर दिया। इनकी रचना कौशल की पृष्ठभूमि ग्रामीण जीवन रही है। हिन्दी कथा साहित्य में छः कहानियों और तीन उपन्यासों से उन्होंने रेगिस्तान में हरियाली उगने जैसे कथन को सत्यापित कर दिया है। उनकी रचनाओं की सीमाएँ भले ही सीमित हो परन्तु प्रतिभा कौशल के तेज में कहीं भी कमी नहीं आई है।

शिवमूर्ति के कथा साहित्य में स्त्री केन्द्रित समस्याओं को एक नयी दृष्टि से रखा गया है। दलित-चेतना और स्त्री प्रबल चेतना का प्रवाह इनकी रचनाओं में प्रवाहमान है। इनकी कहानियों में जैसे-'कसाईबाड़ा', सिरी अपमा जोग, 'तिरिया-चरित्तर', 'अकालदंड' आदि में स्त्री जीवन का आत्मसंघर्ष, उत्पीड़न, समर्पण आदि भावनाओं का उद्वेग बहाव है, रचनाएँ इतनी संवेदनशील है कि कल्पना और यथार्थ के बीच की सीमा समाप्त होती नजर आता है।

आजादी के दौर में शहरी और ग्रामीण जीवन के मदभेद को मिटाने वाले समय में एक बहुत बड़ी दीवार आज भी मौजूद है, आज भी गाँवों में बहुत कुछ नहीं बदला है, वो है नारी शिक्षा उसकी त्याग की भावना, समर्पण, करूणा, ममता, उसका विकास आदि, 21वीं० सदी में समानाधिकार वाले न्याय प्रधान कृषि केन्द्रित देश में जहाँ आधी आबादी की बात कही जाती है, वहीं उनकी स्थिति दयनीय सोचनीय बनी है, क्यों? चाहे वह 'कसाईबाड़ा' की शनिचरी, लीडराइन या परधानिन हो, तिरिया चरित्तर की विमली हो, 'अकालदंड' की 'सुरजी' हो या 'सिरी उपमा जोग' की ममता हो, सभी की सभी समाज के उस हिस्से का हिस्सा है जहाँ शोषण, वासना से प्रेरित छल-कपट, रिश्तों की कड़ियाहट, आत्मसम्मान का छीनना, अभावपूर्ण जीवन के साथ त्याग की मूर्ति, समर्पण की प्रतिभा बनी हुई है।

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*शोध छात्रा, हिन्दी विभाग, काशी हिन्दू विश्वविद्यालय, वाराणसी

भारत एक कृषि प्रधान देश है, स्वतंत्रता के पश्चात् गाँवों में जो परिवर्तन हो रहा है, उसका विवरण हिन्दी कथा—साहित्य में भी दिखता है। हिन्दी लेखकों ने अपनी लेखनी के द्वारा राजनीतिक, सामाजिक और सांस्कृतिक स्थिति को दर्शाने का प्रयास किया। उन्होंने गाँव के इन पहलुओं को समझा और उसके विकासमान स्वरूप को दर्शाया। गाँव भी आधुनिकता के कलेवर में ढल रहे थे। साथ ही ग्राम्य संबंधी कथा साहित्य में भी गाँव का चित्रण बदल रहा था। बिहार के ग्रामीण जीवन का अंकन रामधारी सिंह दिवाकर की रचनाओं में देखने को मिलता है। इनकी कहानियों में:— "बिहार के गाँवों की निर्धनता, दबंग किसानों द्वारा कमजोर किसानों का शोषण—दमन, शिक्षा के क्षेत्र में व्याप्त अव्यवस्था से युवकों की बेरोजगारी और हताशा, स्त्रियों का श्रम और यौन शोषण तथा उत्पीड़न सरकारी संस्थाओं में व्याप्त भ्रष्टाचार आदि का यथार्थ चित्रण हुआ है।"[1]

रामधारी सिंह दिवाकर को ग्रामीण जीवन के कथा—शिल्पकार के रूप में जाना जाता है। इनका जन्म 1 जनवरी 1935 में बिहार प्रदेश के अरिया जिला स्थित नरपतगंज नामक गाँव में हुआ था। दिवाकर जी एक निम्न—मध्यमवर्गीय किसा परिवार को सम्बन्ध रखते थे। प्रारम्भिक शिक्षा—दीक्षा गाँव में हुई। उन्होंने अपनी उच्च शिक्षा की पढ़ाई भागलपुर विश्वविद्यालय से सम्पन्न की और मिथिला विश्वविद्यालय, दरभंगा से व्याख्याता के तौर पर हिन्दी अध्यापन का कार्य आरंभ किया। उनकी पहली कहानी 'नई कहानियाँ' के जून 1971 के अंक में प्रकाशित हुई। उन्होंने लगभग बारह कहानी संग्रह और सात उपन्यास लिखा है। इसके अलावा शोध, आलोचना, संस्करण आदि पर भी दर्जनों पुस्तकें हैं। इनके मुख्य उपन्यास 'क्या घर क्या परदेश', 'काली सुबह का सूरज', 'पंचमी तत्पुरुष', 'आग—पानी', 'आकाश', 'टूटते दायरें' और 'अकाल सं— या है।

रामधारी सिंह दिवाकर के कथा—साहित्य में ग्रामीण यथार्थ की जटिल संरचना और उसके बहुस्तरीय परतों को पहचानने की एक सफल कोशिश है। आधुनिक युग में सामाजिक संरचना में बहुत सारे ऐसे तत्वों का समावेश हो गया है जिसके कारण सामाजिक—व्यवस्था क्रमशः ध्वस्त होती जा रही है। इस व्यवस्था में सबकुछ न पूर्णतः स्वीकारात्मक है, न नकारात्मक, सामाजिक परिवर्तन की दिशाएँ शुद्ध और विरुद्ध दोनों ओर क्रियाशील है।— "ऐसे संक्रमण काल में हिन्दी कहानी अपनी जातीय परंपरा और आकस्मिक रूप से परिवर्तित मान—मूल्यों के बीच कथ्य, शिल्प और भाषा के स्तर पर जो उपस्थापन कर रही है, उसकी अनगूँज स्पष्ट सुनी जा सकती है।"[2] दिवाकर जी ने अपने कथा—साहित्य में इसी संक्रमण को बारीकी से पकड़ने की कोशिश करते हैं।

समाज में परिवर्तित परिदृश्य को वह अपने लेखनी से दिखाने का प्रयास करते हैं।

रामधारी सिंह दिवाकर अपने लेखन कथा के बारे में कहते हुए लिखते हैं— "मैं स्वयं ऐसी ही पारिवारिक पृष्ठभूमि से शहर आया था, इसलिए माँ—बाप, भाई—बहन और गाँव समाज के परिवेश को पूरी अंतरंगता से जानता पहचानता था। लेखक जिस परिवेश से संस्कार और आत्मा के स्तर पर गहरा जुड़ाव करता है।"[3] दिवाकर जी अपने लेखनी में मुख्यतः बिहार प्रदेश के ग्रामीण क्षेत्रों के समस्याओं और उसके यथार्थ पर अपना लेखन किया। "इनकी कुछ कहानियों में गाँव से निकलकर शहर में आ जाने वाले शिक्षित और उच्च पदों पर स्थापित एकल परिवारों की मानसिकता का अच्छा चित्रण किया गया है।"[4] उन्होंने अपने कथा—साहित्य में पारिवारिक रिश्तों को ज्यादा महत्व दिया है। इसलिए दिवाकर जी को मानवीय—रिश्तों एवं मानवीय—मूल्यों के पुर्नस्थापन का लेखक माना जाता है। वह सामाजिक संबंधों के महत्व पर हमेशा जोर दिये। 'खोई हुई जमीन' में नयी पीढ़ी की उदारता दिखाई गयी है। 'संबंध वाचक' में माता—पिता की और पुत्र के संबंधों पर अच्छा लेखन कार्य है। इसके अतिरिक्त 'विदादृष्टि', 'अनामसंज्ञा', 'दीवार बरगद', 'बड़े होते लोग' कहानियाँ सामाजिक सम्बन्धों और मानवीय मूल्यों से जुड़े हुए है।

दिवाकर जी कहानियाँ और उपन्यास गाँवों के सभी क्षेत्रों से जुड़ा हुआ है। चाहे वो सामाजिक, राजनीतिक व आर्थिक संबंध हो या गाँव में नैतिक और सांस्कृतिक गिरावट का चित्रण। दिवाकर जी स्वयं कहते हैं कि— "मैं मुख्यतः गाँव पर लिखता रहा हूँ और गाँव का यथार्थ बहुत जटिल होता है। यह जितना अग्रगामी है, उतना ही पश्चगामी। जाति—व्यवस्था वैसे तो पूरे हिन्दू—समाज का अडिग और निर्विकल्प यथार्थ है, लेकिन गाँव के कुछ ज्यादा ही दिखाई पड़ता है।"[5] 'अव्यय अतीत' और 'मन्दिर चढ़ि कागा बोले' में गाँव में हो रहे नैतिक और सांस्कृतिक गिरावट को दर्शाया गया है। 'मोहरें', 'माटी—पाटी' और 'मखान—पोखर' जैसी कहानी गाँव में जातिगत संघर्ष और रिश्तों की उलझनों को दिखाता है। 'आंतक', 'जहर' जैसी कहानी गाँवों में फैलते उपराध की संस्कृति का चित्रण करती है।

बिहार के गाँवों की पृष्ठभूमि पर रामधारी सिंह दिवाकर द्वारा लिखित 'अकाल संध्या' बदलाव की प्रक्रिया से गुजर रहे गाँवों का प्रमाणिक दस्तावेज है। यहाँ जमींदारी समाप्ति के पश्चात् सवर्ण की घटती सत्ता और दलितों में जनतांत्रिक चेतना के कारण बढ़ते आत्मविश्वास की कहानी है। यह ग्रामीणों द्वारा उन्हीं की भाषा में कही गई उन्हीं की कहानी है। मुख्य पात्र माई और उसके पूरे जीवन काल की घटना का वर्णन ही कथानक का मुख्य उद्देश्य है। दलितों का राजनीतिक व सामाजिक उत्थान और सवर्णों का

पतन सामाजिक–व्यवस्था को तोड़ता है। दलित युवक से शादी करने में दुःखी ब्राह्मण का सनातन धर्म व्यवस्था को नष्ट होने का वर्णन 'अकाल सध्या' है। यह उपन्यास बदलाव की प्रक्रिया से गुजर रहे गाँवों का एक आँखों देखा वर्णन है। 'दाखिल खारिज गाँव' उपन्यास मानवीय मूल्य और गाँवों में नष्ट हो रही सामाजिक–आर्थिक व्यवस्था का चित्रण करती है। आधुनिक दौर में पढ़े–लिखे युवा और वृद्धजन अपने गाँव के विकास के लिए अपने क्षेत्रों में लौटकर आते हैं, परंतु उनके सपनों को उनके ही गाँव में धज्जियाँ उड़ा दी जाती है। इस कथानक में प्रोफेसर प्रमोद का अपने छूटे हुए गाँव के लिए कुछ करने का संकल्प और सपने लेकर आना और बेरहमी से उनको खारिज किया जाना आज के बदलते हुए गाँव का निर्मम यथार्थ है।

रामधारी सिंह दिवाकर के कथा–साहित्य का मुख्य विषय बिहार–प्रदेश के ग्रामीण अंचल है। उन्होंने गाँवों की समस्या और बदलते सामाजिक, आर्थिक एवं राजनीतिक परिदृश्य को बड़े ही संवेदनशील माध्यम से अपनी लेखनी के द्वारा चित्रित किया है। वह ध्वस्त होती सामन्ती ग्रामीण व्यवस्था के सापेक्ष जो नयी समाज–व्यवस्था उभर रही है, उसके शुभ–अशुभ पक्षों को दिवाकर जी ने पूरी तन्मदता से उकेरा है। वह पुराने मूल्यों के स्थान पर स्थापित नई मूल्यों में एक अविश्वास एवं षड्यंत्र की बूँ देखते हैं और लेखन का मुख्य उद्देश्य गाँव के यथार्थ को समझाना और मानवीय मूल्य और सामाजिक संबंधों को सहेजना है।

I UnHk।ं

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♦ ♦ ♦

पत्रांक.....0.0.3........   दिनांक..0.1|0.6|1.3

स्वीकृति पत्र

प्रमाणित किया जाता है कि .....प्रियंका कुमारी मिश्रा..........
....

का शोध–लेख .....समकालीन कविता में व्यंग्य और विसंगति...
....

अनभै साँच पत्रिका में प्रकाशनार्थ प्रस्तुत किया गया है। उपर्युक्त शोध–लेख को पत्रिका के आगामी अंक .....अप्रैल – जून 2013................ में प्रकाशित किया जायेगा।

संतोष पाण्डेय

डॉ0 संतोष पाण्डेय 'सत्यम'
संपादक

समकालीन कविता में व्यंग्य और विसंगति

प्रियंका कुमारी मिश्रा*

"दूर कर दिया है, हमें,
पुराने विचारों, वादों से
बदल दी सोच इन कथनों से
दिखा दी तस्वीर आज की
कविताओं ने, जो बदल गई है
समकालीनता में।"

उड़ान की चिड़िया भी अपने पंखों को नये—नये आकाशतल में खोलती हैं। कविता जीवन की ऐसी व्याख्या है, जो जिन्दगी के तमाम (फलसफे) को अपने भीतर समेटे रहती है। नई कविता के दौर को अपनी प्रौढ़ता और यथार्थ के साथ समाप्त करने वाली धारा ही अपने युग और परिवेश से सम्पृक्त कविता है।

समकालीन हिन्दी कविता एक ऐसी प्रबल प्रभावशाली काव्यधारा थी, जिसमें— "भारतेन्दुयुगीन पुनर्जागरण काल की नवीन चेतना, द्विवेदीयुगीन जागरण—सुधारणकाल की नैतिकता और छायावादी स्वच्छंदतावादी दृष्टिकोण प्रगतिवादी यथार्थोन्मुखता एवं प्रयोगवादी लघु मानव की प्रतिष्ठा तथा कालक्रमानुसार होने वाली शैल्पिक वैविध्य को लांघती हुई देखते ही समकालीन कविता में परिणत हो गई है।"[1] यह कविता उस मोहभंग को दर्शाती है जो हमारी आशा—निराशा—आकांक्षा, राग—विराग, हर्ष—विषाद सबकुछ को अपने में समाये हुए हैं।

समकालीनता का तात्पर्य अपने समय की रचनाशीलता का मूल्याकंन और विश्लेषण करना हैं। समकालीन साहित्य का अभिप्रायः अपने युग की ऐतिहासिक प्रक्रिया में जनवादी भविष्योन्मुखी दृष्टि के साथ विश्लेषित करने की क्षमता। कहा जाता है कि काव्य कवि की अर्न्तमन की अभिव्यक्ति होता है। प्रसिद्ध आलोचक डॉ0 नगेन्द्र के अनुसार, "कवि की अभिव्यक्ति ही साधारणीकरण का माध्यम है।"

इस वाक्य का अनुसरण हमारे साहित्य में मर्मज्ञ कविगणों ने किया है, जिमसें कबीर, तुलीस, भारतेन्दु और निराला की रचना परम्परा का आंकलन कर सकते है। इस दृष्टि से ये सभी कवि समकालीन है, इसके साथ समकालीन कविता ने सातवें—आठवें दशक की नयी कविता और अकविता के अर्न्तविरोधों और अराजकता को स्वीकार किया। वस्तुतः समकालीन कवित्ता की कोई प्रमाणिक एवं पुष्ट परिभाषा दे पाना सम्भव नहीं है—"समकालीन कविता का आधार यथार्थ है, व्यंग्य और आक्रोश के स्वर से भरा हुआ है, जीवन की विसंगतियों को विशेष महत्व दिया जाता है। असौन्दर्य को महत्ता दी जाती है, सपाटबयानी में जीवन के वास्तव चित्र

* शोध छात्रा, हिन्दी विभाग, काशी हिन्दू विश्वविद्यालय, वाराणसी