19th C.D. DESHMUKH MEMORIAL LECTURE
18 JANUARY 2023

"INCLUSIVE DEVELOPMENT IN INDIA: AGRICULTURE, EMPLOYMENT AND SOCIAL SECTOR"

Dr. C.D. Deshmukh
1896-1982

PROFESSOR S. MAHENDRA DEV
Distinguished Professor, ICFAI Business School, Hyderabad
Former Vice Chancellor, IGIDR, Mumbai

COUNCIL FOR SOCIAL DEVELOPMENT
(An Autonomous Research Institute supported by Indian Council of Social Science Research, Government of Telangana and Reserve Bank of India)
Southern Regional Centre
5-6-151, Rajendranagar, Hyderabad-500030, Telangana, India
+91 40 24016395 | Email: director@csdhyd.org| www.csdhyd.org

19th C.D. DESHMUKH MEMORIAL LECTURE
18th JANUARY 2023

Dr. C.D. Deshmukh
1896-1982

"INCLUSIVE DEVELOPMENT IN INDIA: AGRICULTURE, EMPLOYMENT AND SOCIAL SECTOR"

PROFESSOR S. MAHENDRA DEV
Distinguished Professor, ICFAI Business School, Hyderabad
Former Vice Chancellor, IGIDR, Mumbai

COUNCIL FOR SOCIAL DEVELOPMENT
(An Autonomous Research Institute supported by Indian Council of Social Science Research, Government of Telangana and Reserve Bank of India)
Southern Regional Centre
5-6-151, Rajendranagar, Hyderabad-500030, Telangana, India
+91 40 24016395 | Email: director@csdhyd.org| www.csdhyd.org

C.D. DESHMUKH: A PROFILE
(1896-1982)

Chintaman Dwarakanath Deshmukh was the first Indian Governor of the Reserve Bank of India. He later became the Union Finance Minister.

Chintaman Deshmukh had an outstanding educational career. He stood first in the Matriculation examination of the University of Bombay in 1912, and also secured the first Jagannath Sankersett Scholarship in Sanskrit. At the University of Cambridge in 1917, he graduated in the field of Natural Sciences Tripos with Botany, Chemistry and Geology, winning the Frank Smart Prize in Botany. He appeared for the Indian Civil Service Examination, then held only in London, in 1918, and topped the list of successful candidates.

For most of his 21 years with the Indian Civil Service, Chintaman Deshmukh was with the then Central Provinces and Berar Government where, among other things, he was probably the youngest among those who held the positions of Revenue Secretary and Finance Secretary.

Chintaman Deshmukh's association with the Reserve Bank of India began in July 1939, when he was appointed Liaison Officer in the Bank to keep the Government of India in touch with the Bank's affairs. Three months later, he was appointed Secretary of the Central Board of the Bank and two years later in December 1941, as the Deputy Governor. He was Governor from August 11, 1943 to June 30, 1949.

Chintaman Deshmukh played an important role in the Bretton Woods Conference in July 1944, which led to the establishment of the International Monetary Fund (IMF) and International Bank for Reconstruction and Development (IBRD). In both of these institutions, Chintaman Deshmukh was a Member of the Board of Governors for ten years and was the Chairman at the Joint Annual Meeting of these two institutions held in Paris in 1950.

In September 1949, the then Prime Minister Jawaharlal Nehru appointed Chintaman Deshmukh as India's Special Financial Ambassador to America and Europe, in which capacity he conducted the preliminary negotiations for a wheat loan from the USA. Towards the end of the year, Jawaharlal Nehru asked Chintaman Deshmukh to work on the organisation of the Planning Commission and appointed him member of it when it was set up on April 1, 1950. Shortly thereafter, Chintaman Deshmukh joined the Union Cabinet as the Finance Minister and held that office with distinction till he resigned in July 1956.

He was Chairman of the University Grants Commission from 1956 to 1960 and Vice-Chancellor the University of Delhi from March 1962 to February 1967, building it up as an outstanding institution for higher learning.

He was President of the Indian Statistical Institute (ISI) from 1945 to 1964. It was during the period when he was both the President of the ISI and the Union Finance Minister that the National Sample Survey, to be conducted by the ISI, was instituted (1951-52), and the Central Statistics Office was established. He was President of the Institute of Economic Growth, New Delhi, from 1965 to 1974. He served as the Honorary Chairman of the National Book Trust from 1957 to 1960. He founded the India International Centre in 1959, for which he was the Life President. He headed the Board of Governors of the Administrative Staff College of India, Hyderabad, from 1959 to 1973 and was also the Chairman of the Indian Institute of Public Administration, New Delhi, in 1963-64.

He was co-recipient of the Ramon Magsaysay Foundation's Award for distinguished Government Service in 1959.

PROFESSOR S. MAHENDRA DEV
A Brief Bio-Data

Prof. S. Mahendra Dev is presently Distinguished Professor at ICFAI business school, Hyderabad and Chairman of the Institute for Development Studies, Andhra Pradesh. He was the Director and Vice Chancellor, Indira Gandhi Institute of Development Research (IGIDR) in Mumbai (2010-2022). Prior to this position, he was Chairman of the Commission for Agricultural Costs and Prices, Ministry of Agriculture (2008 - 2010). He was Vice Chairman of the *Board of Trustees of International Food Policy Research Institute (IFPRI)*, Washington, D.C and member of the Board of IFPRI (2013- 2019). He was Director, Centre for Economic and Social Studies, Hyderabad, India (1999 to 2008). He was member and Acting Chairman of the *National Statistical Commission,* Government of India. He received the prestigious Malcolm Adisesaiah Award in 2016.

INCLUSIVE DEVELOPMENT:
AGRICULTURE, EMPLOYMENT AND SOCIAL SECTOR

Prof. Muchkund Dubey, Prof. Shanta Sinha, Prof. Sujit Kumar Mishra, faculty and staff of Council for Social Development (CSD), Hyderabad, faculty, researchers, students joining from other institutions and friends,

Let me first thank CSD for inviting me to deliver the 19th CD Deshmukh Memorial lecture. It is an hour and privilege to give this lecture. As you know, Late Dr. Chintaman Dwarakanath Deshmukh was a distinguished civil servant, economist, educationist and scholar. He had an outstanding educational career. At the University of Cambridge in 1917, he graduated in the field of Natural Sciences Tripos with Botany, Chemistry and Geology, winning the Frank Smart Prize in Botany. He appeared for the Indian Civil Service Examination, then held only in London, in 1918, and topped the list of successful candidates. He was the first Indian Governor of the RBI from August 11, 1943 to June 30, 1949. He played an important role in the Bretton Woods Conference in July 1944, which led to the establishment of the International Monetary Fund (IMF) and International Bank for Reconstruction and Development (IBRD). He joined the Union Cabinet as the Finance Minister and held that office with distinction till he resigned in July 1956. He was Chairman of the University Grants Commission from 1956 to 1960 and Vice-Chancellor the University of Delhi from March 1962 to February 1967, building it up as an outstanding institution for higher learning. Establishment of CSD in 1962 was one of his many outstanding contributions to institutions and society. The CSD was founded by the eminent social reformer Dr. (Smt.) Durgabai Deshmukh, with the active support of Dr. C.D. Deshmukh. CSD is a leading research and policy studies institution that puts equality and justice at the core of social development. Keeping in view the interests of CSD, I have decided to speak today on "Inclusive Development in India: Agriculture, Employment and Social Sector".

Before going to the components, we examine the concepts of inclusive growth and inclusive development. According to one definition, the inclusive growth is in line with the absolute definition of pro-poor growth, but not the relative definition (Ianchovichina and Lundstrom, 2009). If we consider absolute definition, growth is considered to be pro-poor as long as poor people benefit in absolute terms, as reflected in some agreed measures of poverty (Ravallion and Chen, 2003). On the other hand, under the relative definition, growth is pro-poor if and only if the incomes of poor people grow faster than those of the population as a whole. In other words, inequality has to decline under this definition of inclusive growth.

Pernia and Kakwani (2009) consider that growth is pro-poor when the benefits of growth that accrue to the poor are proportionally more than those received by the non-poor. They also argue that a pro-poor growth scenario would occur if growth reduces poverty, and inequality is decreased simultaneously during the course of growth.

What is inclusive development? Kanbur and Rauniyar (2009) explain the differences among pro-poor growth, inclusive growth and inclusive development. According to them, pro-poor growth is identified as growth that also reduces income poverty. Inclusive growth is defined as growth that is accompanied by lower income inequality, so that growth in incomes accrues disproportionately to those with lower incomes. The concept of inclusive development differs from inclusive growth. The focus of inclusive development is not confined to income alone as it includes other dimensions of well-being, in particular education and health. Inclusive development, thus, refers to the improvement of the distribution of well-being in income and non-income dimensions. For example, the Millennium Development Goals (MDGs) and Sustainable Development Goals identify a number of these dimensions. They also provide a good framework for measuring and achieving inclusive development.

In this lecture, we examine the performance, challenges and policies in three important and inter-related components of inclusive development in India: agriculture, employment and social sector. Before going to the components, we also discuss the growth prospects in Indian economy.

1. ECONOMIC GROWTH AND POLICIES

It is important to have higher economic growth in order to have inclusive growth. Therefore, we look at the trends and policies for raising faster growth. India is more globally integrated now as compared to 1991 when reforms started. The share of trade (exports+imports) increased from 15% in 1991-92 to 46% in 2011-12 although it declined to 27% in 2019-20. There are many challenges at global level such as climate change, urbanization, migration, technologies like automation, increased inequality, changes in political factors like the US and China policies, and protectionism. The present Russia-Ukraine war also has impact on growth. These global challenges may have impact on India’s economic, social and sustainable development.

GDP Growth

The sources of growth from demand side are private consumption, government consumption, investment and net exports. The period 2003-4 to 2007-08 recorded the best GDP growth of 8 to 9% per annum before the financial crisis. Global growth was also high during this period. From 2008-09 to 2010-11, growth was maintained but with a cost of high combined fiscal deficit of 8 to 9%. Inflation was also high during this period. From 2011-12, the growth rate increased from 5.2% to 8% in 2015-16. In 2016-17, inspite of demonetization growth rate was high at 8.3%. Then subsequently the growth rate declined to 6.8%, 6.5% and to 3.6 % respectively in 2017-18, 2018-19 and 2019-20 (Table 1 and Fig.1). On the supply side, the reasons for decline in the decade of 2011-20 compared to earlier decade are the decline in the growth of industry including manufacturing and construction and services while agriculture maintained its growth. During COVID-19 period, the GDP growth showed -6.6 in 2020-21 and recovered to 8.7% in 2021-22. It is expected to be 7% in 2022-23.

Table 1: GDP Growth 2012-13 to 2022-23: All India

Year	GDP Growth (%)
2012-13	5.5
2013-14	6.4
2014-15	7.4
2015-16	8.0
2016-17	8.3
2017-18	6.8
2018-19	6.5
2019-20	3.6
2020-21	-6.6
2021-22	8.7
2022-23	7.0

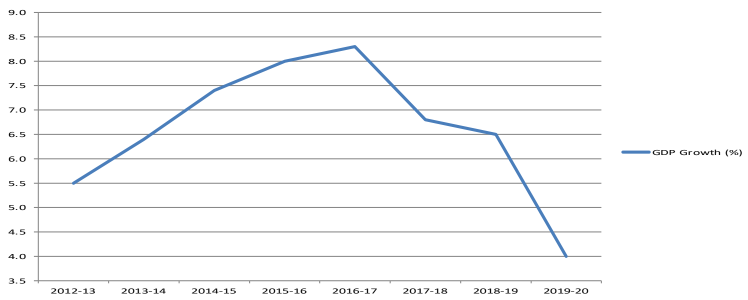
Source: National Accounts Statistics, GOI

A report of the Confederation of Indian Industry (CII) says that India's GDP can grow from the current \$3 trillion to \$5 trillion by 2026-27, to \$9 trillion by 2030 and to \$40 trillion by 2047 if its population is productively employed[1]. While there has been some recovery from the pandemic, there still remain concerns for medium to long term growth.

1 See Srivats, K.R. (2022), "\$40 trillion economy by 2047 possible if working age population is employed: CII report", BusinessLine, April 4, 2022.

Much more efforts are needed to achieve the goal of $5 trillion because even in pre-covid period, the economy was slowing down. Obviously, for increase in growth in future, progress in both demand side and supply side is needed. India needs to have 7 to 8% growth in future to increase revenue which can be used for investment and social sector. Some analysts say India's medium term growth could be around 6%.

Fig. 1. GDP Growth 2012-13 to 2019-20



Infrastructure

Generally it is said that we need three things for higher growth. These are : infrastructure, infrastructure and infrastructure. A lot of progress has been made in all infrastructure sectors. However, almost all indicators score poorly if one looks at India's urban and rural infrastructure particularly compared with South East Asian countries and China.

Table 2: Investment and Fixed Capital as % of GDP: 2011-12 to 2020-21

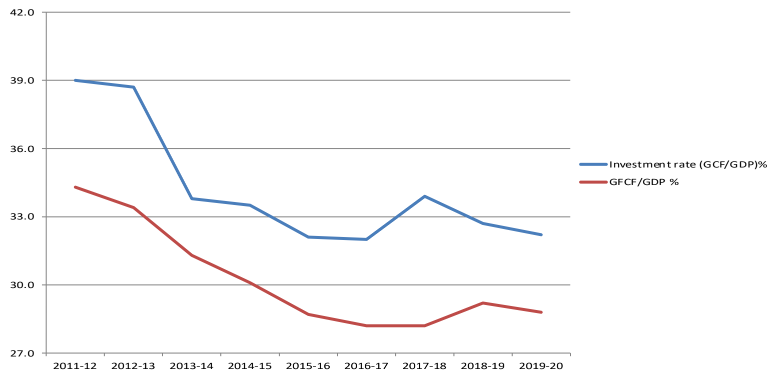
Investment Rate

Year	Investment Rate (Gross Capital Formation as% of GDP)	Gross Fixed Capital Formation as % of GDP
2011-22	39.0	34.3
2012-13	38.7	33.4
2013-14	33.8	31.3
2014-15	33.5	30.1
2015-16	32.1	28.7
2016-17	32.0	28.2
2017-18	33.9	28.2
2018-19	33.8	29.5
2019-20	30.7	28.6
2020-21	**27.3**	**26.6**

Source: National Accounts Statistics, GOI

In India, the investment rate has been declining in recent years. The investment rate as per cent of GDP declined from 39% in 2011-12 to 32.2% in 2019-20 (Table 2). Gross fixed capital as per cent of GDP also showed a reduction from 34.3% to 28.8%. Similarly, savings rate also declined from 35% to 30%. Decline in investment and savings were more in household sector than corporate sector (Rangarajan and Srivastava, 2020).

Fig 2: Investment and Fixed capital Ratios



Source: National Accounts Statistics, GOI

One study by Ghani etal (2016) examined the impact of this project on manufacturing activity. It resulted in 49% overall output increase from initial levels for the average district. For instance moderate density districts like Surat in Gujarat or Srikakulam in Andhra Pradesh registered a more than 100% increase in new output and new establishment counts after the Golden Quadrilateral. Government is focusing on infrastructure in recent years. The government outlined in August 2020 an infrastructure project pipeline worth more than Rs 102 lakh crore to be implemented over the next five years. The last two budgets focused on infrastructure. Budget 2021-22 focuses on three areas. Firstly, by creating the institutional structures; secondly, by a big thrust on monetizing assets, and thirdly by enhancing the share of capital expenditure in central and state budgets. Recently, the government has unveiled a four-year National Monetisation Pipeline worth an estimated Rs 6 lakh crore. The budget 2022-23 also increased budget significantly on infrastructure. Of course all these plans on infrastructure depends on the effective implementation.

Trade Policy

It is well known that exports are one of the main engines of growth and employment creation. When India had high growth, during 2000-2011, exports grew at an annual rate of 21 per cent and 24 per cent, respectively, for goods and services. However, exports of goods completely stagnated with an annual growth rate of nearly 0 per cent during 2012-19. More recently, the Covid-19 pandemic has impacted world trade negatively. World trade may go up now with higher growth in US, Europe, Asian countries. The Russia-Ukraine war may hamper export prospects.

A study done at IGIDR argues that there are two groups of industries (traditional industries and global value chains) that hold the greatest potential for export growth and employment generation.

Financial Sector

Credit to GDP ratio in India is only 50% while in other countries it is 100 to 150%. Need for rise in credit in India is obvious. Globally, some stability has been achieved due to the measures taken by central banks and governments over the years: reducing policy rates, capital and liquidity measures, govt. guarantees etc. In the Indian context, maintaining the health of the banking sector remains a policy priority. Building its capital base and good corporate governance is needed. Privatisation of some banks may be needed but corporate governance is a problem even in some private banks like we have seen in Yes Bank and ICICI bank.

According to the present RBI governor, there are four distinct sets of banking landscapes which are emerging. The first set will be dominated by a few large Indian banks. Second, there will be several mid-sized banks. Third set is small private sector banks, small finance banks (SFBs), regional rural banks and cooperative banks.

The fourth segment would consist of digital players who may act as service providers directly to customers. India is on the way to becoming Asia's top financial technology (Fin Tech) hub with 87% Fin Tech adoption rate against the global average of 64%. The growth rate of Indian Payment systems like UPI and Aadhaar Enabled payment service (AePS) has been phenomenal with 55% growth.

1. TRANSFORMATION OF INDIAN AGRICULTURE

There has been significant progress in the country's agricultural development since Independence, from a food-deficit country to a country self-sufficient in food. However, the Green Revolution also led to water-logging, soil erosion, groundwater depletion and the unsustainability of agriculture. Current policies are still based on the "deficit" mindset of the 1960s. The procurement, subsidies and water policies are biased towards rice and wheat. Three crops (rice, wheat and sugarcane) corner 75 to 80 per cent of irrigated water. Diversification of cropping patterns towards millets, pulses, oilseeds, horticulture is needed for more equal distribution of water, sustainable and climate-resilient agriculture.

The narrative of Indian agriculture has to be changed towards more diversified high-value production, better remunerative prices and farm incomes. It must be inclusive in terms of women and small farmers; it must be nutrition-sensitive, environment friendly and sustainable.

The incomes of farmers have to be increased for taking care of their needs and also as a source of demand for non-agriculture. The Situation Assessment Surveys of NSSO show that the average monthly income of agricultural households in current prices increased from Rs. 2115 in 2003 to Rs. in 10218 in 2018-19 (Table 3). The share of cultivation in total income is the highest at 46% in 2003 and 48% in 2013. But, the share declined to 37% in 2018-19. The share of income from animals rose from 4.3% in 2003 to 15.5% in 2018-19. The share of wage income increased and it is the highest source of income for agricultural households in 2018-19. The income shares for non-farm business declined over time. In fact, the income from cultivation between 2013 and 2018-19 declined if we adjust with inflation.

Table 3: Average Monthly Income of Agricultural Households in Current Prices: NSS Surveys 2003, 2013 and 2018-19

	Income (in Rs.) current prices			**Share in total income (%)**		
	2003	**2013**	**2018-19**	**2003**	**2013**	**2018-19**
Cultivation	969	3081	3798	45.8	47.9	37.2
Animals	91	763	1582	4.3	11.9	15.5
Wages	819	2071	4063	38.7	32.2	39.8
Non-farm business	236	512	641	11.2	8.0	6.3
Leasing out of land	--	--	134	--	--	1.3
Total	2115	6426	10218	100.0	100.0	100.0

Source: Situation Assessment Surveys of NSO (National Statistical Office)

Another source of farmer's income is the All India Rural Financial Inclusion Survey of NABARD. This survey also provides information on income of agricultural households and non-agricultural households for the year 2015-16. This survey shows that 35% income of agricultural households is from cultivation, 34% from wage labour, 16% from salaries and 8% from livestock (Table 5). The share of cultivation and livestock together was 43% in NABARD survey as compared to 60% in NSS Survey of 2013.

Another interesting finding is that only 23% of rural income is from agriculture (cultivation+livestock) if we consider all rural households (Table 4). Around 44% of income is from wage labour, 24% from government/private service and 8% from other enterprises. It shows that income from non-farm sector is the major source in rural areas.

Table 4: Average Monthly Income of Agricultural Households in current prices: NABARD survey 2015-16

Source of Income	Agricultural Households		All (agri+non-agri) households	
	Income (in Rs.)	Share in income%	Income (In Rs.)	Share in Income%
Cultivation	3140	35.2	1494	18.5
Livestock	711	8.0	338	4.2
Other enterprises	489	5.5	679	8.4
Wage Labour	3025	33.9	3504	43.5
Govt./ Pvt. Service	1444	16.2	1906	23.7
Other sources	122	1.4	138	1.7
Total	8931	100.0	8059	100.0

Source: NABARD (2018)

It also reveals that agricultural households do not depend only on farm income but they depend on multiple sources for their livelihoods. The above findings show that both agriculture and non-agriculture are important for raising income of agricultural households. There is a need for diversification within agriculture. Government of India introduced three farm laws as part of agricultural reforms. These reforms are important but it should be left to the states to implement them.

Small farmers require special support, public goods and links to input and output markets. Many technological and institutional innovations can enable them to increase incomes through diversification, and benefit from value chains. Best institutional practices have to be followed in agricultural marketing. Farmer producer organisations help get better prices for inputs and outputs for small holders. The ITC's E-Choupal is an example of technology benefiting small farmers. Similarly, women's empowerment is important particularly for raising incomes and nutrition. Women's cooperatives and groups like Kudumbashree in Kerala would be helpful. One of the successful examples of a value chain that helped small holders, women and consumers is Amul (Anand Milk Union Ltd) created by Verghese Kurien. Such innovations are needed in other activities of food systems.

Another issue is hunger and malnutrition in India. According to the NFHS-4 survey, around 38 per cent of the country's children reported stunting in 2015-16. The NFHS-5 shows that under-nutrition has not declined in many states even in 2019-20. Similarly, obesity is also rising. A food systems approach should focus more on the issues of undernutrition and obesity. Safe and healthy diversified diets are needed for sustainable food systems.

EAT-Lancet Commission (2019) recommends a healthy and sustainable diet given the constraints on the planet, is not affordable for the majority of the population in India. A recent study of the Tata-Cornell Institute For Agriculture and Nutrition (Gupta et al, 2021) shows that the cost of the EAT-Lancet dietary recommendations for rural India ranges between \$3 and \$5 per person per day. In contrast, actual dietary intake at present is valued at around \$1 per person per day. The gap is much more for meat, fish, poultry, dairy and fruits. In fact, even in rural areas, processed foods like potato chips and biscuits are cheaper and available as compared to fruits and vegetables. Even if they are available, these items are expensive for common people. Animal-sourced foods are still needed for countries like India. For instance, per capita consumption of meat is still below 10 kg in India as compared to 60 to 70 kg in the US and Europe.

The sustainability of food systems is equally important. Estimates show that the food sector emits around 30 per cent of the world's greenhouse gases. This is going to be crucial in the years to come due to climate change. Sustainability has to be achieved in production, value chains and consumption. Climate-resilient cropping patterns have to be promoted. Instead of giving input subsidies, cash transfers can be given for farmers for sustainable agriculture.

Finally, the role of non-agriculture is equally important for sustainable food systems. Some economists like T N Srinivasan argued that the solution for problems in agriculture was in non-agriculture. Therefore, labour-intensive manufacturing and services can reduce pressure on agriculture. Income from agriculture is not sufficient for small holders and informal workers. Strengthening rural MSMEs and food processing is part of the solution. Industry has to help in producing healthy processed food.

In September 2021, the UN Secretary-General has convened the Food Systems Summit, which aims for a transformation of global food systems in order to achieve the Sustainable Development Goals (SDGs) by 2030. There are five action tracks to achieve the objectives. These are: Ensure access to safe and nutritious food for all; shift to sustainable consumption patterns; boost nature-positive production; advance equitable livelihoods; build resilience to vulnerabilities, shocks and stress[2]. According to the Food and Agriculture Organisation (FAO, 2018), "food systems encompass the entire range of actors involved in the production, aggregation, processing, distribution, consumption and disposal of food products that originate from agriculture, forestry or fisheries, and parts of the broader economic, societal and natural environments in which they are embedded". At the global level, there is a proposal to have an International Panel on Food and Nutritional Security (IPFN) — an "IPCC for food," similar to the panel on climate change. The UN food systems summit this month is a great opportunity to boost policies for achieving SDGs. Science and technology are important drivers to achieve these goals. India also has to transform its food systems, which have to be inclusive and sustainable for higher farm incomes, nutrition security and to take care of adverse climate change effects.

There are three goals of agricultural development. These are: (a) achieving high growth by raising productivity; (b) inclusiveness by focusing on lagging regions, small farmers and women; and (c) sustainability of agriculture. In order to achieve these goals, we have to provide medium term strategy and action plan. The policies and reforms needed in for agriculture transformation are given below.

(1) *Need for change in narrative in the new context:* Basically, we have to change the narrative on agriculture towards more diversified high value production, better remunerative prices and farm incomes, marketing and trade reforms, high productivity with less inputs, cost effective, less chemical and pesticide based, inclusive in terms of women and youth farmers, small farmers and rain fed areas, nutrition sensitive, environmental friendly and sustainable agriculture. The five 'I's in agriculture: Incentives, Investment, infrastructure, Institutions, Information' have to be modified to achieve the goals.

(2) *Global trends and Macro policies are equally important for Indian agriculture*: There are many challenges at global level such as climate change, geo-political and urbanization. These factors and anti-globalisation is the changing context for food systems and agriculture. Agricultural economists generally

[2] See von Braun et al (2021) for seven priorities on food systems

restrict to the policies relating to farm sector. However, there is a need to look at macro policies and non-agriculture.

(3) *We have to Walk on two legs (agri. and non-agri.) in the changing context*: Rural areas are changing. We have to invest in agriculture for raising the livelihoods but simultaneously shift population from agriculture to non-agriculture over time. Thus, both agriculture and non-agriculture are important for raising income of farm households.

Two agricultures: There are two types of agricultures in India – one is cereal based and the other one is non-cereal based[3]. Government policies have been biased towards cereals particularly rice and wheat. There is a need to shift from rice, wheat-centric policies to millets based and non-cereal focused policies to promote diversification of cropping patterns.

(4) *Doubling farm income (DFI):* Estimates show that we need more than 10% per annum growth in income to achieve DFI in 2022. Government seems to be banking on agriculture (crop+livestock) sector for DFI. But, as shown above. Government should also promote much more opportunities in non-farm sector in rural areas. Also, one has to take into account heterogeneity among different classes of farmers. Similarly, environmental aspects of doubling farm incomes have to be assessed.

(5) *Remunerative price is the most important factor for farmers*: Even after 70 years of independence, we are not able to provide remunerative prices for farmers. Farmers have been getting low prices in normal, drought and good years because of distortions in price and marketing policies. Many reforms in marketing are needed.

(6) *Beyond harvest and Freedom for farmers:* Agriculture GDP+ indicates that we have to go beyond farming and develop value chain comprising farming, wholesaling, warehousing, logistics, processing, and retailing. Farmers want freedom from restrictions on market and exports. Private sector participation can be improved if some of the fears like the Essential Commodity Act, stock limit and export bans are removed. Banning exports hurts the farmers most. There have been new generation start-ups coming up in agriculture.

[3] See Subrahmanian, 2018

(7) *Do not forget basics like water and technology*: Basics like seeds, fertilizers, credit, land and water management and technology are important and they should not be forgotten. Similarly, investment in infrastructure and R&D are needed. But, we discussed the issues and policies in water and technology as both are crucial for agricultural development. Basically it is not investment alone but efficiency in water management in both canal and ground water is important. Some countries invested more in technology, extension, education, transport, energy and institutions. India is trailing behind in all these areas.

(8) *Inclusiveness for broad based growth and equity*: Inequalities in agriculture are high. There is a need to focus on small and marginal farmers, women, youth, rainfed areas, Eastern and other lagging regions, social groups like SC and ST farmers. We discussed policy issues in each of these elements of inclusiveness in agriculture. The role of women in agriculture has been increasing. Women collectives and group farming can be encouraged to benefit female farmers. An emerging area of research relates to linkages between agriculture and nutrition. There can be three entry points namely, importance of agriculture for inclusive growth, agriculture for diversification of diets and role of women in agriculture for strengthening agriculture-nutrition linkages. Farmer households spend considerable amount of money on health and education. In fact, health expenditures on catastrophic illness lead to indebtedness in agricultural households. Otherwise, governments have to provide farmers income similar to universal basic income.

(9) *Measures to take care of impacts of climate change and improving resilience in agriculture and sustainability:* One can achieve higher agricultural growth but it has to be sustainable in terms of using lower resources and less input growth. Resilience in agriculture has to be improved. Climate smart agriculture is being discussed throughout the world to reduce GHG emissions and increase resilience. FAO says that there is a need for raising technical capacity of farmers particularly small holders to enable them adopt climate-smart agricultural practices. Conservation agriculture and zero budget natural farming are some of the methods that have to be used as part of adaptation and mitigation measures for climate change.

(10) Institutions and Governance: Strengthening institutions and governance is crucial for achieving growth, equality and sustainability of agriculture. Institutions throughout the agricultural value chains and food systems are important for better governance and effective implementation. They are also important for reducing inequality. There are several examples of best practices in institutions relating to alternative markets, contract farming, self help groups, farmer federations, farmer

producer companies, women collectives like Kudumbashree programme in Kerala, self-help groups of women, institutions relating to canal and ground water irrigation and natural resource management. We have to scale up some of these successful institutions for improving agricultural development.

To conclude, agriculture is a state subject according to the Indian constitution. States have to play active role along with central government in achieving the three goals of growth, inclusiness and sustainability. Achieving high growth is important. But, growth without inclusiveness and sustainability will not be useful. Agriculture transformation has to be viewed more holistically in terms of rural transformation and urban linkages. There is a need to give big push for Indian agriculture for transformation and achieving farmers' welfare.

2. EMPLOYMENT AND SKILLS: CHALLEGES AND OPPORTUNITIES

Expanding productive employment is central for higher economic growth, sustained poverty reduction and food security as labour is the main asset for majority of the poor. It is also known that a high output elasticity of employment generally ensures that growth is egalitarian. However, inspite of its importance, the concern for employment in development thinking has been pushed aside particularly in the last two decades. It is important to place the employment issue at the centre of the national and international agenda. This is also crucial for the success of Sustain Development Goals (SDGs).

Some positive trends in employment

Before going to challenges, we discuss here few positive trends in Indian labour market.

First, the share of regular wage/salaried employees has increased by 5 percentage points from 18 per cent in 2011-12 to 23 per cent in 2017-18 while the share of casual labours declined by 5 percentage points during the same period (GOI, 2020)[4].

Second, the share of organized sector in employment rose from 13.7 per cent in 2004-05 to 19.2 per cent in 2017-18 although the share of organized employment in total increased from 7.5 per cent to only 10.0 per cent.

Third, there seems to be structural transformation in rural areas from agriculture to industry and services. As shown in table 5, the share of non-farm employment in total for males increased from 19 per cent in 1977-78 to 47 per cent in 2018-19

[4] GOI (2020), "Economic Survey, 2019-20", Ministry of Finance, New Delhi

while for females it rose from 12 per cent 29 per cent. It is interesting to see that the shares of manufacturing and services in rural employment are more or less similar. This is true for both males and females.

Table 5: Structural transformation in rural Areas: Workers

	Male				Female			
	Agricul-ture	**Industry**	**Services**	**Non-farm (industry +services**	**Agricul-ture**	**Industry**	**Services**	**Non-farm (industry +services**
1977-78	80.6	8.8	10.5	19.3	88.1	6.7	5.1	11.8
1993-94	74.1	11.2	14.7	25.9	86.2	8.3	5.6	13.9
2004-05	66.5	15.5	18.0	33.5	83.3	10.2	6.6	16.8
2011-12	59.4	21.9	18.6	40.5	74.9	16.8	8.4	25.2
2017-18	55.0	23.2	22.0	45.2	73.2	13.6	13.2	26.8
2018-19	53.2	23.5	23.2	46.7	71.1	13.4	13.6	29.0
2019-20	55.4	23.1	21.6	44.7	75.7	13.0	11.2	24.2

Source: Periodic Labour Force Survey 2017-18, National Statistical Office.

Fourth, the shares of agriculture in total employment (rural+urban) in 2017-18 shows that some states have already undergone structural transformation. Table 6 shows that the share of agriculture in Kerala was only 20 per cent while the share in Punjab, Haryana and Tamil Nadu was less than 30 per cent. In other words, some states have high development of manufacturing and services. On the other hand, states like Chattisgarh (67.4%), Madhya Pradesh (60.4%) and Rajasthan (49.6%) have high shares of agriculture in total employment.

Table 6: Transformation of workers Across States: Rural+Urban, 2017-18

States	**Share of Agriculture in Total workers**		**States**	**Share of Agriculture in Total workers**	
	%	**Rank**		**%**	**Rank**
Kerala	19.6	1	Jharkhand	46.3	10
Punjab	26.5	2	Andhra Pradesh	47.4	11
Haryana	27.6	3	Maharashtra	47.8	12
Tamil Nadu	27.8	4	Odisha	48.7	13
West Bengal	36.6	5	Uttar Pradesh	48.8	14
Gujarat	42.6	6	Rajasthan	49.6	15
Bihar	45.2	7	Madhya Pradesh	60.4	16
Karnataka	45.9	8	Chattisgarh	67.4	17
Assam	46.0	9	All India	44.2	-

Source: Estimated based on the numbers given by Mehrotra and Parida (2019)

Challenges of employment in India's Labour market

The most important challenge is how to increase the quality of employment and skill development. The challenges of employment are the following.

(1) Decline of women in employment: The work participation rates have decreased for both men and women (Table 7). However, the decline was much faster for women particularly in rural areas. Moreover, the participation rates of women are low and declining. These rates are only 22 per cent for women compared to 71% for men in 2017-18. It increased in 2019-20 but it was less than 30%.

Table 7: Work participation rates (15 years and above)

Years	Male			Female		
	Rural	**Urban**	**Total**	**Rural**	**Urban**	**Total**
2004-05	84.6	76.3	82.2	48.5	22.7	41.6
2009-10	81.2	74.0	79.1	37.2	18.3	31.8
2011-12	80.0	74.1	78.1	35.2	19.5	30.5
2017-18	72.0	69.3	71.2	23.7	18.2	22.0
2018-19	72.2	68.6	71.0	25.5	18.4	23.3
2019-20	74.4	69.9	73.0	32.2	21.3	28.7

Source: Periodic Labour Force Survey, 2017-18, National Statistical Office, Delhi

In fact, 34 million women have dropped out of labour force during the period 2011-12 to 2017-18. It is true that the share of women attending educational institutes has increased over time. At the same time, the share of women attending domestic duties has also risen during this period. But, there seems to be a demand problem in the economy. Dropping out of labour force by the poor and women may be more discouraged worker problem. In other words, they drop out of work force as they perceive that jobs are not available. There are constraints for women in the male-dominated society but demand for work is important for their participation. There is a need to increase the participation rates of women which are much lower than many other Asian countries including Bangladesh. Former IMF Chief Christine Lagarde said that increase in women's participation rates would raise GDP by 40 per cent in India.

But, women's 'work and 'non-work may be misleading. Time use surveys indicate women's unpaid work as home makers and care givers is quite high. Some estimates show that if we monetize unpaid work of women, it amounts to around 16 lakh crores per annum (Nandi and Hensman, 2015).

(2) *Challenge of generating employment:* According to some estimates, India has to generate around 13 million productive jobs per annum if the Lewis turning point is to be reached by 2035 (Ghosh, 2019). If the number of agriculture

workers is to remain the same as in 2018 and if unemployment and surplus labour are to fall to zero by 2035, employment in non-agriculture excluding construction will have to increase from 209 million in 2018 to 419 million in 2035 (Ghose, 2019).

(3) *Structural challenge, focus on manufacturing:* As mentioned in the previous section, there is hardly any disagreement on the fact that India needs to aim at higher growth of productive employment and decent work, and that the manufacturing sector is critical to growth. In the post-Covid-19 scenario, India may get opportunity to focus on global value chains and exports in manufacturing. Service sector also need to be promoted as both manufacturing and services contributes 60 per cent of GDP.

(4) *Youth unemployment:* The overall unemployment has increased from 2.2% in 2011-12 to 6.1% in 2017-18. But, youth unemployment has risen from 6.1% to 17.8% during the same period. Rising unemployment is also associated with increase in education. The proportion of youth attending educational institutions has increased at a faster rate from 23% in 2004-05 to 38.5% in 2017-18 for young males while for young females the proportion almost doubled from 15.8% to 30.3% during the same period (Mehrotra and Parida, 2019). The youth with education and skills will have higher unemployment as they can remain unemployed and search for suitable jobs. One of the main problems for the agitations by the people like the Marathas in Maharashtra, Patidars in Gujarat, Jats in Haryana and Kapus in Andhra Pradesh relates to youth unemployment and aspirations of these castes to move to quality employment. Central and State governments have to be sensitive to youth employment problem.

(5) *Labour market inequalities:* Similar to some of the developing countries, Indian labour market has the characteristics of high dependence on agriculture, domination of informal sector, virtual absence of unemployment insurance or social wage, the problem of 'working poor', large share of self-employed, gender bias and seasonal migration. Another peculiar characteristic is that caste, tribe, kinship etc. remain important determinant of access to quality employment.

(6) *High share of informal sector*: India has one of the highest number and proportion of informal workers in the world. Around 91 per cent (422 million) of the total were informal workers in 2017-18. In other words, only 9% of the total workers in India are formally employed and enjoy regular jobs. It is interesting to note that out of 80 million organized sector workers, 51% were informal workers in 2017-18. It shows that even in organized sector, the contractual employment has been increasing faster. There is some increase in formal sector but it does not

compensate for the losses among the poor and women. In order to reduce inequalities in income and wage gaps, policies have to focus on improving productivity of informal sector and providing decent jobs.

(7) *Migrant Labour*: Internal migrants and international migrants are discriminated in the labour market. The short term internal migration is generally distressed one. India and other South Asian countries to gulf region contributed bulk of the South-South migration. As ILO (2014) says that the increase in South-South migration has coincided with the increased incidence of abuse and exploitation of low skilled workers particularly in the gulf countries. Asian migrant workers in the gulf are vulnerable to exploitation and face significant abuse of workers' rights, including forced overtime, delayed wages, poor working and living conditions, and limited access to health care. Similarly, internal migrants also face several problems in Indian cities as shown by the experience of these workers during the lockdown period of Covid-19.

(8) MSMEs: Micro, small and medium enterprises as a whole form a major chunk of manufacturing in India and play an important role in providing large employment and exports. The policies have to give a positive bias towards MSMEs so that they can be a driver for employment generation. Short and long-term initiatives are required specifically for the development of MSMEs.

(9) *Automation and technology*: India has to be ready to approach a fourth industrial revolution. It may lead to some disruption in the established sectors and may lead to some pressures on employment. Although presently robotics and other technological problems are more in developed countries, India should be ready for facing the impact of robotics and AI on employment. Optimists say that net employment may rise with fourth industrial revolution including robotics. For example, Microsoft CEO Satya Nadella says that artificial intelligence can be made more inclusive and inequalities can be reduced.

(10) *Skill development*: India has demographic dividend advantage as many young people enter the labour force. The young people is an asset only if it is (a) educated (b) skilled and (c) finds productive employment. This “demographic dividend” comes at a time when the rest of the world is ageing. Some estimates show that only 2.3% of India’s workforce has undergone formal skill training compared to United Kingdom’s (UK) 68%, Germany’s 75%, USA’s 52%, Japan’s 80% and South Korea’s 96% (Niti Ayog, 2017). According to the Periodic Labour Force Survey (PLFS) 2017-18 only 13.5% of workforce in the productive age group of 15-59 years has received training (2.26% formal vocational training and 11.27% informal training). Under the Skill India Mission, the Government of

India implements the Pradhan Mantri Kaushal Vikas Yojana. (PMKVY) 2016-20. Under PMKVY, around 6.9 million candidates have been trained throughout the country by November 2019 (GOI, 2020).

For having structural change from agriculture to non-agriculture and from unorganised to organised, education and skill improvement are needed. Government initiatives on skill development have so far yielded in slow progress. The approach seems to be more in the form of increasing skills from supply side. It must be noted that many successful East and South east countries also focused on general higher education including science. If the focus is on general quality education, skill development can increase from the demand side. More innovative methods may be required to improve skills faster. In order to promote quality employment and skills, among other things, the country needs to invest more in physical infrastructure and human capital.

Covid-19 and Unemployment: Estimates by the Centre for Monitoring Indian Economy (CMIE) show that unemployment has increased from 8.4% to 27% in the first few months of the Covid-19 last year. There was a loss of 122 million jobs. Out of that small traders and casual labourers lost 91 million jobs. In the second wave, unemployment increased to 14.5% in the same month and it is high in rural areas also. Around 22.7 million people lost jobs in April and May in 2021. Even after recovery now, the employment rate is 2 percentage points less than the pre-covid-period – around 10 million jobs. Therefore much more efforts are required on employment in future including recovery of the jobs due the pandemic.

3. SOCIAL SECTOR

We have discussed earlier structural changes from low productive sector to high productive sectors. But, this is not enough. Fundamentals change in terms of growth in human capital is equally or more important for reduction in inequalities. We should also ensure universal basic services.

Education, Health: Equity in quality

Reduction in inequality of opportunity is important for promoting equity. "The distinction between inequality of opportunity and inequality of outcome can be particularly useful in guiding public policy. Equality of opportunity is not only intrinsically important but also a critical condition for a prosperous society. Public policy must be put in place to reduce or eliminate inequality of opportunity. Governments must work hard to promote equality of opportunity and to ensure that everybody has equal opportunity to participate in the growth process and benefit from its fruits. To the extent that inequality of parents' income leads to inequality of opportunity for children, this inequality needs to be overcome by interventions to assure equal access to public services and to markets for all in society." (Kanbur et al, 2014).

There are six issues in India's social sector in general and health and education in particular. These are: (a) low levels of human development indicators; (b) slow progress in these indicators; (c) significant regional, social and gender disparities; (d) slow growth in public expenditures in social sector (only 1.2% of GDP spent on health) (e) poor quality delivery systems in both health and education; (f) issues in privatization of health and education services.

As Dreze and Sen (2013) say the nature of Indian inequality can be distinguished from some of the other countries like China. Aggregate inequality may be similar between India and China. However, the poor in India can't afford even basic necessities. Also access and quality public services in education, health care etc. are missing for the poor. "For both these reasons, inequality in India takes the terrible form of a massive disparity between the privileged and the rest, with a huge deficiency of the basic requirements for a minimally acceptable life for the underdogs of society. The basic facilities of usable school, an accessible hospital, a toilet at home, or two square meals a day, are missing for a huge proportion of the Indian population in a way they are not in, say, China" (p.280, Dreze and Sen, 2013).

Equity in quality education is the key for raising human development and reduction in inequalities in labour market. A study by Cain et al (2014) on India shows that increase in returns to education account for a large part of the increase in urban inequality during 1993-94 to 2004-05. Increase in returns to education has been particularly higher in education intensive services (such as communications, finance, insurance, real estate and other business services) and education intensive occupations (professional/technical, managerial/ administrative, and clerical occupations). A lack of focus on quality of education and health will create further exclusion of disadvantaged sections like SCs, STs, minorities and women[5].

[5] On education, see Radhakrishna (2020)

Is Government bad in running schools and hospitals?

One major issue relates to roles of public and private sectors in education and health. It is true that the quality of public institutions have to be improved. However, the World Development Report 2018 shows that their research on education across 40 countries does not find any difference in the learning outcomes of children with similar family backgrounds in both private and public schools. This, the World Bank challenges the perception in India that private schools deliver better outcomes than public schools. Several research studies on education have shown strong impact of remedial instruction programs on learning outcomes[6]. A lack of focus on the quality of education and health will create further exclusion for hitherto excluded groups.

Kerala's experience shows that public schools and hospitals are not inferior to those of private sector. In fact, good quality public schools and healthcare can also raise the quality of private sector. Niti Ayog is thinking of advocating universal health insurance. But, this will not solve the problem in health as we need universal health care.

Health and education achievements are essential for human capital. Yet the country's progress on both these aspects leaves much to be desired. We also have great quality dichotomy in both these sectors. There are islands of excellence that can compete internationally in education while vast majority of them churn masses of children with poor learning achievement and unemployable graduates. One has to fix this dichotomy in health and education. Few years back, the Deputy Prime Minister of Singapore cautioned about school education in India. He says "schools are the biggest crisis in India today and have been for a long time. Schools are the biggest gap between India and East Asia. And it is a crisis that cannot be justified"[7]. Skill deficiency of workers is well known.. Promotion of technology and knowledge economy will add to growth. One can't have 'demographic dividend' for growth with low human capital. In order to have structural change from agriculture to non-agriculture and from unorganized to organised, education and skill development are needed. Women's labour participation rates have been low and declining. Raising women's human capital and participation rates can improve economic growth. We may also not achieve high human capital and productivity with 36% of our children suffering from malnutrition.

---

[6] See Banerjee et al (2017)

[7] First Lecture of Niti Ayog's 'Transforming India" initiative, August 26, 2016

Social Protection

India has long experience in these programmes like MGNREGA, National Rural Livelihoods Mission (NRLM), public distribution system (PDS), nutrition programmes like mid-day meal schemes, ICDS, etc. In the last few years, the government has done well in providing universal access to cooking gas or liquified petroleum gas (LPG) connections under the Pradhan Mantri Ujjwala Yojana), and electricity through the Pradhan Mantri Sahaj Bijli Har Ghar Yojana, and/or universal cleanliness programmes like the Swachh Bharat Abhiyan, and inclusive financial programmes like the Pradhan Mantri Jan Dhan Yojana and the MUDRA).

There are some gaps in the social protection programmes. Some of the poor are excluded due to Adhaar enabled services. This problem has to be tackled. The social protection programmes have to be strengthened with more allocations. In India there has been a lot of discussion on Universal basic income (UBI). There is a consensus for cash transfers directly giving to farmers, women, old age population etc, a kind of Quasi UBI. It is true that a universal scheme is easy to implement. The issue with targeted programmes is the problem of identification and exclusion.

In order to avoid the identification problem (Rangarajan and Dev, 2021) suggested three proposals to meet the objective of providing minimum basic income to poor and vulnerable groups in both rural and urban areas. These are:

(a) first, give cash transfer to all women in both rural and urban areas above the age of 20 years;

(b) second, expand the number of days provided under National Rural Employment Programme from 100 to 150 in rural areas;

(c) third launch National Employment Guarantee Scheme in urban areas including skill improvement.

In all these proposals, there is no problem of identification. A combination of cash transfer and an expanded employment guarantee scheme can provide minimum basic income.

4. SUSTAINABLE FUTURE AND CLIMATE CHANGE

In the recent COP20 meeting at Glasgow, Prime Minister Narendra Modi announced that India will aim to **attain net zero emissions by 2070**. Net zero, or becoming carbon neutral, means not adding to the amount of greenhouse gases in the atmosphere. China has announced plans for carbon neutrality by 2060, while the US and EU aim to hit net zero by 2050.PM Narendra Modi also announced that India will draw 50% of its consumed energy from renewable sources by 2030, and cut its carbon emissions by a billion tonnes by the same year.

India wants Commitments of developed countries on providing finance, transfer of technology and emission reductions due to historically high consumption patterns.

India presently depends on 70% of their energy requirements on coal and this sector also provides employment. It may take some time to reduce dependence on coal. Clean technology has to be developed for coal to reduce emissions.

What are the policies needed to face the impact of climate change for agriculture? Economic Survey 2017-18 says that India needs to spread irrigation against a backdrop of rising water scarcity and depleting groundwater resources. India pumps more than twice as much groundwater as China or United States (GOI, 2018). There is a need to review of power and water subsidies.

Agriculture is the sector most vulnerable to climate change. Consistent warming trends and more frequent and intense extreme weather events such as droughts have been observed. It is well known that we need adaptation and mitigation strategies regarding impacts of climate change[8].

Climate-smart agriculture: FAO (2010) discusses strategies needed for climate-smart agriculture. It is defined as agriculture that sustainably increases productivity, resilience (adaptation), reduces/removes GHGs (mitigation), and enhances achievement of national food security and development goals.

It provides examples of climate-smart production systems such as soil and nutrient management, water harvesting and use, pest and disease control, resilient eco systems, genetic resources etc. It also discusses about efficient, harvesting, processing and supply chains. Efficient harvesting and early processing can reduce post-harvest losses and preserves food quantity, quality and nutritional value of the product (FAO, 2010). This approach also ensures better use of co-products and by-products, either as feed for livestock, to produce renewable energy in integrated systems or to improve soil fertility.

The report says that agriculture in developing countries must undergo a significant transformation in order to meet the related challenges of food security and climate change. Effective climate-smart practices already exist and could be implemented in developing country agricultural systems. For small holders, climate smart

[8] Also see Alagh (2017)

agriculture offers a triple-win strategy: (a) improving small holder productivity for nutrition crops; (b) help small holders to adapt to climate change; (c) mitigate agriculture's contribution to climate change (Nwanze and Fan, 2016)[9].

Conservativation agriculture: It is developed as an alternative to conventional production systems. The spread of conservation agriculture (CA) is largely concentrated in the rice–wheat system in the Indo-Gangetic Plains of the country. The zero-till wheat after rice is the most widely adopted conserving agricultural technology in the Indian Indo-Gangetic Plains. Thus it has become the predominant CA based cropping system. Zero-till wheat has the advantage of significant costs savings and potential yield increase (GOI, 2017). There are many benefits due to conservation agriculture. These are (a) enhance livelihood security; (b) reduce soil erosion; (c) more carbon sequestration; (d) enhance resource use efficiency; (e) improve soil health; and (f) minimize green house gas emissions (GOI, 2017)

Zero Budget Natural Farming (ZBNF): This natural farming has been promoted by Subhash Palekar[10]. Nearly 5 million farmers seem to have adopted ZBNF so far. It does not use fertilisers and pesticides. It only uses natural resources like soil, water, air and, cow urine. Unlike the chemical farming, the ZBNF does not add to green house gas emissions. The Government of Andhra Pradesh through Rythu Sadhikara Samstha (RySS), Department of Agriculture has introduced Zero Budget Natural Farming (ZBNF) in 2016 as an alternative to chemical based agriculture. Andhra Pradesh has become the first state to adopt ZBNF in 2016. The name of the programme now is changed to Andhra Pradesh Community Managed Natural Farming (APCNF). This programme now covers 6 million farmers and 8 million hectares[11]. It is important to scale up ZBNF to different parts of India to improve incomes, environment, adapt and mitigate to climate change.

Vegetarian vs. non-vegetarian food and climate change

Studies have shown that meet and dairy consumes lot of resources and contributes greenhouse gas emissions. Lot of grains are used as feedstock for livestock. "Livestock has the world's land footprint and is growing fast, with close to 80% of the planet's agricultural land now used for grazing and animal feed production, even though meat delivers just 18% of our calories" (p.1,The Guardian, 2018). In

---

[9] See Babu et al (2017)
[10] For details on ZBNF, see http://www.palekarzerobudgetspiritualfarming.org/
[11] see https://apcnf.in/

a report, experts warn that Europe must halve meat and dairy consumption by 2050 to reduce GHG emissions. It also advocates taxes and subsidies to discourage livestock products harmful to health, climate or the environment (The Gaurdian 2018). In the case of India, meat and livestock will increase with rising incomes. Vegetaianism helped to some extent consuming less natural resources. The per capita meat and dairy consumption in India is not as high as those of developed or some of the developing countries. However, India has to keep in mind that it has to adopt sustainable practices regarding meat and livestock items.

Consumption and climate change: There are two types of inequalities regarding consumption patterns and impact on climate change. First one is inequality in consumption patterns between advanced countries and developing countries. The developed countries have historical responsibilities. Second one is inequalities in consumption patterns between rich and poor in India. The consumption of the rich in India is more or less equal to the rich of the advanced countries. The rich in India have to contribute much more for sustainable development and climate related issues.

Urban areas

The problem is much more severe in urban areas with alarming rates of congestion and pollution along with unhealthy population. There is a need to focus on impending crises in air and water pollution, waste management and urban congestion. Recently, government has been taking measures to reduce pollution levels and face climate change challenges. *Namami* Ganga mission is one example of government's initiatives. Also, the existing environmental regulations in the country are among the most stringent laws exist elsewhere. However, their implementation and enforcement has been inadequate. This has resulted in continued deterioration of environment including air and water pollution. Delhi's air pollution goes to emergency levels every year due to crop residue burning in Punjab and Haryana. But, we have to suggest alternatives to the farmers. Industrial, vehicle and construction pollution is more responsible for Delhi's deteriorating air pollution. One can learn less from Beijing and Shanghai cities in China on reducing air pollution and waste management.

Among various reasons for limited success of environmental policies are, institutional failure and general apathy. "Not in my backyard' attitude of people is equally responsible for pollution problems. On the one hand, the regulating authorities should, keep in mind that 'prevention is better than cure' by playing a pro-active role and, on the other hand, people should cooperate each other and get involved in tackling environmental issues.

5. MONETARY AND FISCAL POLICIES

Monetary Policy

Similar to other countries, India also followed accommodative monetary policy to support growth during Covid-19 period. Around 7 to 8 lakh crore of liquidity was created. Now it has to focus on inflation. CPI inflation was 6.8% in October and 7.4% in September. It is above 6% for more than 9 months (above upper bound of inflation targeting). Some feel RBI was behind the curve and did not raise repo rate when needed. RBI defends their accommodative stance earlier saying that it was needed for supporting growth. Rangarajan (2022) has discussed the distinction between the behaviour of an economy's 'general price level' and prices of individual commodities. Ukraine-Russia war has increased energy prices. Given the budget constraint, increase in individual prices will only result in adjustment of relative prices. On the other hand, according to him, it is the policy response of increasing or contracting liquidity in the system that affects the macro level 'general price level'. Containing the inflation is now primary responsibility of RBI. Some say that inflation is supply driven and monetary policy has less role. But core inflation is still high.

Fiscal Policy

Amidst slowing investment and exports, in response to the pressure to boost growth and create jobs, the government has increased its capex spending by almost 1% of GDP in the last 3 years. Restoring macroeconomic stability amidst global uncertainty would require lowering fiscal deficit and debt to sustainable levels. In the post-pandemic period, fiscal policy has to follow the path of consolidation.

The fiscal deficit of the central government was 3.4% of GDP in FY19. It increased to 9.3% (including off-budget liabilities) in FY21 before declining to 6.7% in FY22. The combined deficit (centre+states) which was less than 6% in FY19 increased to 13.2% and 10.2% in FY21 and FY22 respectively. Fiscal deficit for the central government alone is budgeted to be around 6.4% of GDP in FY23 (Table 8). This highlights the importance of fiscal consolidation in the post-pandemic period in order to follow the FRBM (Fiscal Responsibility and Budget Management) targets.

There are multiple push and pull factors that would impact the government's finances in the near to medium term. On one hand the rise in commodity prices is putting an upward pressure on the subsidy bill such as for fertilizers etc. On the other hand, higher imported inflation due to rupee depreciation will boost tax revenue given that most taxes of the government are ad-valorem. Also the recent decline in crude-oil prices which may persist in the event of a global slowdown, will ease the fiscal pressure to some extent. The net impact on the government's fiscal position therefore remains unclear.

The government's gross borrowing came down to Rs 15.4 lakh crore in FY22 from Rs 18.3 lakh crore in FY21. Till September 2022 the gross borrowing amounted to Rs 6.3 lakh crore. The target borrowing for FY23 is Rs 14.2 lakh crore. A debt to GDP ratio of nearly 90% is clearly unsustainable.

Table 8: Fiscal Deficit and outstanding liabilities (% of GDP): Centre and States

Year	**Gross Fiscal Deficit**		**Outstanding Liabilities**	
	Centre	**States**	**Centre**	**States**
2011-12	5.9	2.0	51.7	23.2
2012-13	4.9	2.0	51.0	22.6
2013-14	4.5	2.2	50.5	22.3
2014-15	4.1	2.6	50.1	22.0
2015-16	3.9	3.0	50.1	23.7
2016-17	3.5	3.5	48.4	25.1
2017-18	3.5	2.4	48.3	25.1
2018-19	3.4	2.4	48.5	25.3
2019-20	4.7	2.6	51.6	26.7
2020-21	9.2	4.2 (PA)	61.7	31.1 (PA)
2021-22	6.7 (RE)	3.5 (BE)	58.1 (RE)	29.4 (BE)
2022-23	6.4 (BE)	--	59.5 (BE)	--

PA: Provisional Accounts; RE : Revised Estimates; BE (Budget estimates)
Source: RBI (2022a), Annual Report 2021-22

The general government outstanding liabilities were less than 70% during the period from FY11 to FY18. But it accelerated to 89.4% in FY21. This is significantly higher than FRBM target of 60% and it is a risk for medium-term macroeconomic stability.

The government has rightly been focusing on capital expenditure in the last two budgets. In August 2020 they also outlined an infrastructure project pipeline to be implemented over the next five years, which will serve as one of the key drivers of faster economic growth. Using the data on annual nominal growth in tax revenue, government expenditure and GDP for the period 1981-82 to 2019-20, RBI (2022a) estimates general government (centre+states) fiscal multipliers for total expenditure and its components (Table 9). The multiplier is more than one only for capital expenditure. It indicates that only capital expenditure leads to proportionately higher rise in GDP.

Table 9: Overall Fiscal Multipliers

	Impact Multiplier
Total Expenditure	0.72
Revenue Expenditure	0.79
Revenue Expenditure net of Interest	---
Payments and Subsidies	0.84
Capital Expenditure	1.32

Source: RBI (2022a)

At the same time there should be some balance between revenue and capital expenditure. Most of the expenditures on health and education are in revenue account. These expenditures on human capital should not be compromised. Fiscal consolidation must focus on raising tax revenue and as well as expenditure control. Tax/GDP ratio has to be improved by measures like widening the tax base, removing exemptions and unproductive subsidies, further reforms in GST etc.

State Finances

Consolidation in state finances is equally important as they spend more than the centre. The recent Sri Lanka fiscal crisis also offers lessons for the centre and states in India[12]. RBI (2022f) examines the fiscal risks confronting state governments in India with emphasis on heavily indebted states. RBI analysis shows the following fiscal risks across states.

(a) Several states show fiscal vulnerability. In FY21, the debt-GSDP (state GDP) ratio shows that Punjab, Rajasthan, Kerala, West Bengal, Bihar, Andhra Pradesh, Jharkhand, Madhya Pradesh, Uttar Pradesh and Haryana as the states with the highest debt burden (Table 22). These 10 states account for around half of the total expenditure by all state governments. The fiscal deficit to GSDP ratios of these states were equal to or more than 3%.

(b) In 8 of the above states, the interest payment to revenue receipts (IP-RR) ratio, a measure of debt servicing burden on states' revenues, was more than 10%.

12 Also see Subbarao, D. (2022), "Learn these Lanka Lessons", Times of India, July 16, 2022.

(c) Taking into account all the indicators, 5 states (Bihar, Kerala, Punjab, Rajasthan, and West Bengal) are identified as highly stressed states.

(d) Among the 10 states, Andhra Pradesh, Bihar, Rajasthan and Punjab exceeded both debt and fiscal deficit targets for FY21 set by the 15th Finance Commission (Figure 22a). Kerala, Jharkhand and West Bengal exceeded the debt target, while fiscal deficit of Madhya Pradesh higher than the target. Rajasthan, Kerala and West Bengal are projected to exceed the 15th Finance Commission targets for debt and fiscal deficit in FY23 (BE) (Figure 22b).

The share of revenue expenditure in total expenditure of these states varies from 82.2% in Madhya Pradesh to 90.8% in Kerala. Some states like Rajasthan, West Bengal, Punjab also spend around 90% in revenue accounts (Figure 23a). These states have high revenue expenditure to capital outlay (Figure 23b).

It may be noted that in the medium to long term, states with high revenue spending and low capital investment may experience slower revenue growth and higher interest outgo. Therefore, there is a need to increase capital expenditure and reduce revenue expenditure in some of these states.

Freebies

Recently, there has been a lot of discussion on freebies given by the states.[13] To derive an estimate of freebies, RBI (2022f) collated data on major financial assistance/ cash transfers, utility subsidies, loan or fee waivers and interest free loans announced by the states in their latest budget speeches (i.e., for FY23). These estimates show that the expenditure on freebies range from 0.1 – 2.7% of the GSDP for different states (Table 10). The freebies as per cent of GSDP were more than 2 per cent for some of the highly indebted states such as Punjab and Andhra Pradesh (Table 10).

13.Singh, N.K. (2022), "Freebies are a passport to fiscal disasters", Indian Express, April 22, 2022 https://indianexpress.com/article/opinion/columns/freebies-are-a-passport-to-fiscal-disaster-7879244/;
Subbarao, D (2022), "States, Freebies and the costs of fiscal profligacy", The Hindu, June 27, 2022, https://www.thehindu.com/opinion/lead/states-freebies-and-the-costs-of-fiscal-profligacy/article65573164.ece; Rangarajan, C. (2022), "Good and Bad Freebies", Indian Express, June 16, 2022.

Table 10: Freebies Announced by the States in 2022-23

	(As a per cent of GSDP)	(As a per cent of Revenue Receipts)	(As a per cent of Own Tax Revenue)
Andhra Pradesh	2.1	14.1	30.3
Bihar	0.1	0.6	2.7
Haryana	0.1	0.6	0.9
Jharkhand	1.7	8.0	26.7
Kerala	0	0	0.1
Madhya Pradesh	1.6	10.8	28.8
Punjab*	2.7	17.8	45.4
Rajasthan	0.6	3.9	8.6
West Bengal	1.1	9.5	23.8

*: Dhasmana, I. (2022). "Not all states are so financially weak that they can't announce freebies". Business Standard. April 2022.
Source: RBI (2022d) based on budget documents of the state governments.

The budgets may not give the entire picture of freebies as some of them happen off budget, beyond the pale of FRBM tracking (Subbarao, 2022). The amount of freebies could be even higher if we take into account these extra-budgetary subsidies. Some kind of social protection measures for the poor and vulnerable groups, and informal workers are needed in any country. However, it should not be financed by increasing debt. Rangarajan (2022), suggests that overall fiscal support to such schemes should be limited to less than 10% of the total expenditure of the central government and state governments until their revenue to GDP or GSDP ratios are increased in a sustainable manner.

Inclusive Development through Monetary and Fiscal Policy

Monetary policy can control inflation, which helps the poor. It can also channel credit to productive sectors including MSMEs and informal sector, which can increase growth and jobs. Similarly, credit can be raised to agricultural sector.

Fiscal Policy: Growth and redistribution in favour of poor can be made through fiscal policies. Taxes, expenditures and subsidies are the major instruments of fiscal policy. Some advocate measures such as redistribution of assets and wealth in favour of the poor via higher tax rates for the rich. In order to reduce inequalities, richer sections have to pay much more taxes. The tax/GDP ratio has to be raised with a wider tax base and removing exemptions for corporates. One of the distortions in India is that the share of direct taxes is much lower than that of indirect taxes. It is known that indirect taxation is regressive in nature. Fiscal instruments like public investment in physical and social infrastructure can be used to reduce inequality. Generally developed countries use counter-cyclical and developing countries follow pro-cyclical. Using the data for the period 1950-51 to 2007-08 Krishnan and Vaidya (2013) examined whether Indian fiscal policy is pro-cyclical or counter-cyclical. The results show that fiscal policy has been generally a-cyclical over the period of study. Graduating from an a-cyclical fiscal stance to a counter-cyclical stance is an important challenge that the Indian economy will have to face in the coming decades.

Are we too conservative in monetary and fiscal policies in India? Goyal (2017) divides macroeconomic policy into two types. Type 1 takes supply side approach where all available factors of production determine potential growth, while demand affects only inflation, not output. This is the usual monetarist view. Type II takes demand side approach where output and aggregate demand. The demand need not be inflationary. This is closer to Keynesian theories or the labour view that values the creation of employment. But, this approach differs in bringing in structural emerging market features which are not normally included in Keynesian theories. India's recent macroeconomic policy has tended towards that of Type 1. According to Goyal (2017), a comparison of Type I and Type II policies show that the latter would lead to better growth and inflation outcomes in the Indian context.

Macro policies, in general, should enhance strong aggregate demand, raise productive investment and improve access to finance in order to raise growth, employment and reduce inequalities.

REFERENCES

Babu, Suresh Chandra, A.Venkatachalam, N. Paul J.Won (2018) "Tracking Climate Resiliency Actions in National Strategies, A Policy and Investment Framework and Application to Myanmar", IFPRI Discussion Paper 01743, International Food Policy Research Institute, Washington DC.

Banerjee, Abhijit, Rukmini Banerji, James Berry, Esther Duflo, Harini Kannan, Shobhini Mukerji, Marc Shotland, and Michael Walton (2017) "Mainstreaming an Effective Intervention: Evidence from Randomized Evaluations of "Teaching at the Right Level" in India", NBER Working Paper 22746, National Bureau of Economic Research, Cambridge, MA.

Cain, J.S., R. Hasan, R. Magsombol and Ajay Tandon (2014), "Accounting for inequality in India: Evidence from household expenditures", in Kanbur et al (2014), op.cit.

Chanda, Rupa (2017), "Services for Indian Manufacturing", In Dev, S.Mahendra (ed., 2017), India Development Report 2017, Oxford University Press, New Delhi

Dreze, J. and Amartya Sen (2013), "An Uncertain Glory: India and its Contradictions", Princeton University Press

EAT-Lancet Commission (2019), "Food in Anthropocene: The EAT-Lancet Commission on healthy diets from Sustainable Food systems", **Lancet**, Vol. 393, Issue 10170, pp 447-492

FAO (2018), "Sustainable Food Systems: Concept and Framework", http://www.fao.org/3/ca2079en/ CA2079EN.pdf, Food and Agricultural Organisation, Rome.

Ghani, Ejaj, Arti Grover Goswami, and William R. Kerr; "Highway to Success: The Impact of the Golden Quadrilateral Project for the Location and Performance of Indian Manufacturing" *Economic Journal* Vol.126, No.591

Ghose, A.K. (2019), "Employment in India", Oxford India Short Introductions, Oxford University Press, Delhi.

GOI (2017), *Strategy for Doubling Farmers' Income by 2022*", Report of the Expert Committee, Vol 1, Vol.2, Government of India.

GOI (2018), "Economic Survey, 2017-18", Ministry of Finance, Government of India

GOI (2020), "Economic Survey, 2019-20", Ministry of Finance, Government of India

Goyal, Ashima (2017), "Macroeconomic Policy for an India in Transition" Economic and Political Weekly, Vol.52, No.47

Gupta, S., V. Vamireddy, D.K. Singh and Prabhu Pingali (2021), "Ground truthing the cost of achieving the EAT lancet recommend diets: Evidence from rural India", Global Food Security, 28 (2021),

Ianchovichina, E. and Susanna Lundstrom (2009), Inclusive Growth Analytics: Framework and Application, Policy Research working Paper no. 4851, World Bank, Washington, D.C.

ILO (2014), "Global Employment Trends 2014: Risk of Jobless Recovery", International Labour Organization, Geneva

Kanbur, Ravi and Ganesh Rauniyar (2009), Conceptualizing Inclusive Development: With Applications to Rural Infrastructure and Development Assistance, Asian Development Bank

Kanbur, R., C. Rhee, and J. Zhuang (2014), "Introduction" in Kanbur et. al (ed., 2014), op.cit. in Kanbur, R., C. Rhee, and J. Zhuang (2014, Eds.), "Inequality in Asia and the Pacific", Asian Development Bank and Routledge

Krishnana, R. and Rajendra Vaidya (2013), "Is Fiscal Policy in India Pro-Cyclical?", in Dev.

S.Mahendra (2013, ed.), India Development Report 2012-13, Oxford University Press, Delhi

Mehrotra, S. and J.K. Parida (2019), "India's Employment Crisis: Rising Education Levels and Falling non-agricultural job growth" https://cse.azimpremjiuniversity.edu.in/wp-ontent/uploads/2019/10/Mehrotra_Parida_India_Employment_Crisis.pdf

NABARD (2018), "All India Rural Financial Inclusion Survey 2016-17", National Bank for Agriculture and Rural Development, Mumbai

Nandy,Amrita and Rohini Hensman (2015), "The Work Women Do", *Indian Express*, November 7, 2015.

Nawanze K.F. and Shenggen Fan (2016), "Strengthening the role of Smallholders", in *Global Food Policy Report 2016,* International Food Policy Report, Washington, D.C.

Nayyar, Deepak (2017), "Employment, Growth and Development: Essays in a changing world economy", South Asia Edition, Routledge, London

Niti Ayog (2017), "India Three Year Action Agenda 2017-18 to 2019-20", Government of India.

Pernia E. and Nanak Kakwani, (2000), What is Pro-poor Growth?, MPRA Paper, University Library of Munich, Germany

Radhakrishna, R. (2015), "Well-being, inequality, Poverty and Pathways out of poverty in India", *Economic and Political Weekly*, Vol.50, No.41

Radhakrishna, R. (2020), "Towards Reforming Education System in India", Indian Public Policy Review, Vol.1, No.2.

Rangarajan, C. and D.K. Srivastava (2020), "India's Growth Prospects and Policy Options", Indian Public Policy Review, Vol.1 and No.1,

Rangarajan C and S Mahendra Dev (2020): "A Safety Net, Post COVID", *Coronavirus Pandemic-Lessons and Policy Response, Economic Development In India (EDI) - Volume 250,* Uma Kapila (ed.), New Delhi: Academic Foundation

Rangarajan, C. (2022), "Good and Bad Freebies", Indian Express, June 16, 2022.

Rao, CHH (2021), "Rising Inequalities in Income in India: Key Role of Socio-political factors", Working Paper, Centre for Economic and Social Studies, Hyderabad.

Ravallion, M. and S. Chen, (2003), "Measuring Pro-poor Growth," Economics Letters, Vol. 78, pp. 93–99

Rodrik, Dani Mcmillan, M. and Sepulveda, C. (2017, eds.), "Structural Change, Fundamentals and Growth: A Framework and Case Studies", International Food Policy Research Institute, Washington, D.C.

Subbarao, D (2022a), "Learn these Lanka Lessons", Times of India, July 16, 2022.

Subramanian, Arvind (2017), "*Transforming Indian Agriculture: By Loving Some Agriculture Less and the Rest More*", Lecture at National Academy of Agricultural Sciences, Delhi.

****

COUNCIL FOR SOCIAL DEVELOPMENT, HYDERABAD

CSD is a leading research and policy studies institution that puts equality and justice at the core of social development. Established in 1962 in New Delhi, CSD emerged as an intellectual and social sciences academic hub, under the leadership of the legendary freedom fighter, social activist, academician and planner, Dr Durgabai Deshmukh. In 1964, the CSD became formally affiliated to the India International Centre and in April 1970 it was registered under the Societies Registration Act of 1860 with C.D Deshmukh as President and Dr (Smt.) Durgabai Deshmukh as Executive Chairperson and Honorary Director. The Southern Regional Centre (SRC), CSD, Hyderabad, was established in Hyderabad in 1967. CSD engages in policy-oriented research with a special focus on social aspects of development planning and concern for social justice and equity that continues to guide the work of CSD. The major thrust of research at CSD is to encourage examination of diverse impacts of policy and appreciation of diversity in understanding the relationship between the state and people

The current President of CSD is the distinguished former diplomat Prof Muchkund Dubey. The CSD-SRC enjoys functional autonomy through its own Managing / Finance Committee which started functioning since 2002. Dr P.M. Bhargava, former Vice-Chairman, Knowledge Commission and former Member, National Security Advisory Group, Government of India, was the first Chairperson of the Committee until his demise on August 1, 2017. Currently, Prof. Shanta Sinha is the Chairperson of the Managing Committee, a Retired Professor of Political Science, University of Hyderabad and Raman Magsaysay Awardee for her distinguished work on the elimination of Child Labour. The other members of the Committee include eminent academicians and social scientists and representatives of our main sponsors ICSSR and the Government of Telangana. Prof. Sujit Kumar Mishra is currently the head of the institute as Regional Director (In-charge).

During the Sixth Five Year Plan period, the Indian Council of Social Science Research (ICSSR), New Delhi, sanctioned a recurring annual grant to the Southern Regional Office (SRO) (since 1977-78). Further, encouragement came from the Reserve Bank of India, and since 1985, RBI has been funding the Institute especially the RBI Chair Professor which is in vogue in several other institutes of the country. The Government of Telangana have been supporting the Council to carry out the research activities.

C.D. DESHMUKH MEMORIAL LECTURES

1. "Planning for the Poor: Indian Experience" by Dr. S.R. Sankaran, I.A.S., (Retd.), 25 April 1997
2. "State of Higher Education in India" by Justice B.P. Jeevan Reddy, Chairman, Law Commission, Government of India, 26 December 1998
3. "A National Economic Agenda" by Shri M. Narasimham, Chairman, Court of Governors, Administrative Staff College of India, 19 January 2000
4. "State and Market – Scope and Limits" by Dr. C. Rangarajan, Governor of Andhra Pradesh, 14 May 2001
5. "Food Grain Surpluses: Causes and Policy Implications" by Prof. C.H. Hanumantha Rao, Eminent Economist, 16 March 2002
6. "Media Power, Roles and Social Responsibility: The Indian Experience" by Shri N. Ram, Eminent Journalist and Editor, Frontline, 22 February 2003
7. "India Today: Self-Government the Only Remedy – but what are the maladies?" by Dr. L.C. Jain, Former Member, Planning Commission, Government of India, 17 January 2004
8. "Private Sector in Education" by Prof. A. Vaidyanathan, Former Member, Planning Commission, Government of India, 13 March 2007
9. "Space Technology for Socio-Economic Development" by Prof. U.R. Rao, Former Chairman, ISSRO & Secretary, Department of Space, Govt. of India, 4 July 2008
10. "Financial Crisis – Some Old Questions and Maybe Some New Answers" by Dr. D. Subbarao, Governor, Reserve Bank of India, 5 August 2010
11. "Making Growth Inclusive in Present Indian Context" by Prof. S.K. Thorat, Chairman, Indian Council of Social Science Research, New Delhi, 24 December 2012
12. "Minority Rights under the Indian Constitution: A Trilogy of Judicial Errors" by Prof. Dr. Faizan Mustafa, Vice Chancellor, NALSAR University of Law, 29 March 2014
13. "Equality, Non-Discrimination, Religion and Disability: South Africa and India" by Justice Zak Yacoob, Retired Justice, Constitutional Court of South Africa, 15 November 2014
14. "Being Adivasi in India: Changing Economic Status of Tribal Communities" by Prof. Ashwini Deshpande, Professor of Economics, Delhi School of Economics, 31 July 2015
15. "Changing Trends in the Political Economy of the Media in India" by Paranjoy Guha Thakurta, Editor, Economic and Political Weekly
16. "Occupy College Street: Notes from the Sixties" by Ranabir Samaddar, Distinguished Chair in Migration and Forced Migration Studies, Calcutta Research Group
17. "Democracy as Majoritarianism" by Prof. Zoya Hasan, Professor Emerita, Centre for Political Studies and Distinguished Professor, Council for Social Development, New Delhi, 25 September 2019
18. "RBI'S Pandemic Response: Stepping out of Oblivion" by Dr. Michael Debabrata Patra, Deputy Governor, Reserve Bank of India, 28 January 2022

COUNCIL FOR SOCIAL DEVELOPMENT
(An Autonomous Research Institute supported by Indian Council of Social Science Research,
Government of Telangana and Reserve Bank of India)
Southern Regional Centre
5-6-151, Rajendranagar, Hyderabad-500030, Telangana, India
+91 40 24016395 | Email: director@csdhyd.org| www.csdhyd.org