CHAPTER - 3

INVESTMENT AND EXPORTS

Summary

Attraction of private investment (in brief, investment) through promotional policy measures has been a key and priority objective of Government of Karnataka to attain higher economic growth, productive employment generation and exports. Investments create the human capital as well as physical capital through gross capital formation and gross fixed capital formation. State's concerted pro-investment initiatives in industrial and other sector-specific policies have resulted in a remarkable inflow of investments and export performance. As a facilitator, the State has developed a unique policy framework for guiding investors and setting up dedicated institutions to streamline the private investment approval processes. Further, Karnataka offers a wide range of fiscal and financial incentives to attract investments and nurturing them by providing with supporting social and economic infrastructure facilities including the technical institutions, laboratories and research institutions. The State's information technology and biotechnology sectors have attracted remarkable investments and contributed to the growth of States' and national exports and employment generation in these sectors. These exports also contribute to the nation's GDP and State's GSDP and, hence, to the economic growth at the national level and state level respectively. Thus, investments and exports especially in electronic, computer software (or IT/ITES) and biotechnology sectors have a great potential to accelerate economic growth further. For instance, Computer related Services and R & D industry contribute about 20% to Karnataka's GSDP. Full realization of this potential may call for further policy measures for strengthening and enhancing the competitiveness of Karnataka to attract the investment inflows and achieve higher exports, especially to offset the negative effects, if any, of Covid-19 pandemic since March 2020.

This chapter highlights the performance and policy measures for promotion of investments and exports in Karnataka State from 2016-17 to 2021-22 and shows a way forward for further promotion of both investments and exports.

3.1. Investment in Karnataka

Karnataka has been a pioneer in introducing many national reform initiatives adopted in India and highly proactive in attracting private investments from the national and global levels. Policies aimed at incentivizing private domestic and foreign investments are framed from time to time. These policies along with an investment friendly climate including ease-of-doing business environment in the State have helped the State to attract private investment inflows, especially in information and communication technology (ICT) and biotechnology sectors. The State was the first to enact the Karnataka Industries (Facilitation) Act 2002 to help investors. Karnataka has a single window which acts as a one-stop-shop for investments in the State. Karnataka Innovation and Technology Society (KITS) (earlier called Karnataka Biotechnology and Information Technology Services or KBITS), established under the Department of IT, BT and S&T by the Government of Karnataka, is specially meant for the promotion and facilitation of investments in the State through enabling and driving innovations and entrepreneurships.

3.1.1. Karnataka's Investment Climate

Karnataka's vast and diversified resource base has emerged as a reputed investment destination for investors worldwide. As shown in Box-3.1, the specific advantages for Karnataka include (i) maintenance of good law and order situation; (ii) abundant availability of highly skilled manpower, (iii) provision for excellent logistic support and connectivity to the investors, and (iv) access to one of the biggest and fast expanding markets in the country. Further, Karnataka's investor-friendly and responsive administration has always worked towards easing administrative procedures and implementing policy reforms for faster and smoother industrial growth. Thus, Karnataka ranks one among the top 5 industrially developed states in India. As per the latest Good Governance Index 2020-21, Karnataka ranks 6th position in India with an incremental growth of the Composite Index value by 0.20 percent. Karnataka is also distinguished by being the fourth largest global tech cluster and fourth largest pool of skilled workforce. Most recently, Bengaluru has emerged as one of the top locations for startups in India.

Box 3.1: Key policy initiatives for attraction of investments into Karnataka State

State-level Single Window Clearance Committee and the State High Level Clearance Committee to facilitate speedy clearance of investment proposals.

Sector-specific industrial zones and Special Economic Zones (SEZs) to match the natural resources and capabilities of a region with the industry requirements.

World-class, ready-to-use infrastructure through public investments in power, roads, water, warehouse and logistic facilities, connectivity through rails and ports etc.

State Government's packages of incentives and concession for new investments announced from time to time in industrial policies.

Sector-specific policies for globally competitive manufacturing industries and services, such, as Biotechnology, Information Technology, and Electronics.

Special policy for Karnataka startups to attract and promote strategic investment and to leveraging the robust innovation climate in Bengaluru.

Special focus on skill development and capacity-building to enhance generation of technical manpower.

Excellent telecommunication network and optical fibre connectivity.

Exemption from State taxes for all purchases from domestic tariff area

Karnataka Udyog Mitra (KUM) is a single contact point for all investors who are looking at setting up enterprises/business in Karnataka. As a nodal agency, its role is to facilitate investments and execute initiatives to enable a smooth transition, from receiving an investment proposal to the eventual implementation of the project. KUM acts as a secretariat for State High Level Clearance Committee (SHLCC), chaired by Hon'ble Chief Minister, for approval of investment projects above Rs.500 crore and State Level Single Window Clearance Committee (SLSWCC), chaired by Minister for Medium & Large Industries, for approval of investment projects between Rs.15 to 500 crore. KUM, among others, has a well-developed database system on the private domestic investment projects as approved by the SLSWCC and SHLCC routes. This master database includes

vital details of information on name of company, project location by districts, product and sectors, size of investment and employment generation, land allocations and implementation status. This database is policy useful for monitoring the objectives of investment and implementation status of approved investment projects. Using this database, Karnataka's performance in attracting the private investments is distinguished below by select indicators.

3.1.2. Size of domestic investment inflows into Karnataka

Size of domestic private investment inflows in terms of approved investment projects by the SHLCC from 2016-17 to 2021-22 (up to 30th November 2021) are given in **Table 3.1.** These investments are above Rs.500 crore in each project. From 2016-17, the number of projects approved has varied from 13 in 2016-17 to one project in 2019-20. During the Covid-19 pandemic years (2020-21 and 2021-22), the number of approved projects have increased from 9 in 2020-21 to 11 in 2021-22. In addition, these investments have employment generation potential of 25909 persons in 2020-21 and 6256 persons in 2021-22. At the same time, investments per project and employment per project has varied over the years.

Table 3.1. Investment projects approved by State High Level Clearance Committee (SHLCC): 2016-17 to 2021-22

Year	Number of projects approved	Total investments (Rs in crore)	Total employment (Number of persons)	Investment per project (Rs. In crore)	Employment per project (persons)
2016-17	13	14226.39	60497	1094	4654
2017-18	15	30119.05	67616	2008	4508
2018-19	5	4387.77	51959	878	10392
2019-20	1	1085.30	3800	1085	3800
2020-21	9	36963.06	25909	4107	2879
2021-22 (Up to November 2021)	11	13487.11	6256	1226	569
Total	**54**	**100268.68**	**216037**	**1857**	**4001**

Source: Karnataka Udyog Mitra (Bengaluru).

Size of investment inflows in terms of approved investment projects by the SLSWCC from 2016-17 to 30th November 2021 are given in Table 3.2. These approvals are characterized by smaller size of investments, above Rs.15 crore and below Rs.500 crore in each project. From 2016-17, the number of projects approved has varied from 134 in 2016-17 to 55 project in 2019-20. During the Covid-19 pandemic years, the number of approved projects are 300 in 2020-21 to 282 in 2021-22 (up to November 2021). Further, employment generation from the investments are 85694 persons in 2020-21 and 71492 persons in 2021-22. Thus, investments per project and employment per project has varied over the years but declined since 2019-20. This indicates that projects include both labour intensive and capital intensive technologies.

Table 3.2.: Projects approved by State Level Single Window Clearance Committee (SLSWCC): 2016-17 to 2021-22					
Year	**Number of projects approved**	**Total investments (Rs in Crore)**	**Total employment (Number of persons)**	**Investment per project (Rs. in crore)**	**Employment per project (persons)**
2016-17	134	19572.04	95608	146	713
2017-18	336	23536.61	203489	70	606
2018-19	156	12120.62	72427	78	464
2019-20	55	4925.31	70298	90	1278
2020-21	300	14892.85	85694	50	286
2021-22 (Up to November 2021)	282	12921.23	71492	46	254
Total	**1263**	**87968.66**	**599008**	**70**	**474**

Source: Karnataka Udyog Mitra, Department of Commerce and Industries, Government of Karnataka (Bengaluru).

Combined investment approvals by the SHLCC and SLSWCC routes in 2020-21 and 2021-22 (up to November 2021) is 602 projects leading to total private domestic investments of Rs.78264.24 crore and employment generation of 1,89,351 jobs. Thus, over the period from 2016-17 to 2021-22, about 46 percent of total number of projects, 31 percent of investments and 26 percent of employment generation are approved in 2020-21 and 2021-22 in spite of nationwide economic slowdown effects of Covid-19 pandemic. This performance in private domestic investment projects' approvals and its resultant employment generation is a remarkable achievement of Karnataka in a pandemic situation and underlines the robustness of Karnataka economy to withstand the shocks of Covid-19 pandemic.

3.1.3. Foreign Direct Investment (FDI) inflows into Karnataka

FDI is an important source and form of private-foreign investment in Karnataka. **Table 3.3** shows the FDI inflows into Karnataka as well as into India from 2016-17 to 2021-22 (up to September 2021).

Table 3.3. Foreign Direct Investment (FDI) Inflows into Karnataka: 2016-17 to 2021-22			
Year	**Total FDI inflows into Karnataka (US$ million)**	**Total FDI inflows into India (US$ million)**	**Share of Karnataka in total FDI inflows into India (%)**
2016-17	2132	43478	4.90
2017-18	8575	44857	19.12
2018-19	1773	44366	4.00
2019-20	4289	49977	8.58
2020-21	7670	59636	12.86
2021-22 (Up to September 2021)	13954	31153	44.79
Total (2016-17 to 2021-22)	**38393**	**273467**	**14.04**

Note: FDI inflows refer to FDI through FIPB Route/ RBI's Automatic Route/ Acquisition Route (Equity Capital components only).
Source: Department of Promotion of Industry & Internal Trade, Government of India (New Delhi)

Table 3.3 shows that total inflow of FDI into Karnataka has increased from US$2132 million in 2016-17 to US$13954 million in 2021-22. Up to 2020-21, size of FDI inflows has varied over the years: highest in 2017-18 (US$8575 million) and lowest in 2018-19 (US$1773 million). This is in contrast with India's total FDI inflows which was highest in 2020-21 (US$59636 million) and lowest in 2016-17 (43478 million). Karnataka's share in India's total FDI inflows has varied from 4 percent in 2018-19 to 19.12 percent in 2017-18. The FDI in Biotech sector has shown a significant rise in FY2020-21, mainly due to the investment in area of Vaccines, testing, and new anti-infectives. The FDI investments grew from $311 million in 2019 to $1.34 billion in 2020-21.

During the current FY 2021-22 (up to September 2021), the inflow of FDI into Karnataka is highest (US$13954 million) and lowest at all India level (US$31153 million). This remarkable performance of Karnataka is further evident in the state-wise FDI inflows from October 2019 to September 2021 in **Table 3.4.** FDI inflows by top 5 states show that Karnataka State stood at third place in the country in 2019-20 and 2020-21 but first place in 2021-22. Over this period from 2019-20 to 2021-22, Karnataka's share in total FDI inflows into top 5 states has remarkably increased from 22.43 percent in 2019-20 to 49.40 percent in 2021-22. Thus, as of September 2021, Karnataka is the top state in India in attracting the biggest size of FDI.

Table 3.4. Foreign Direct Investment (FDI) Inflows from October 2019 to September 2021: Karnataka State's comparative performance among top 5 states

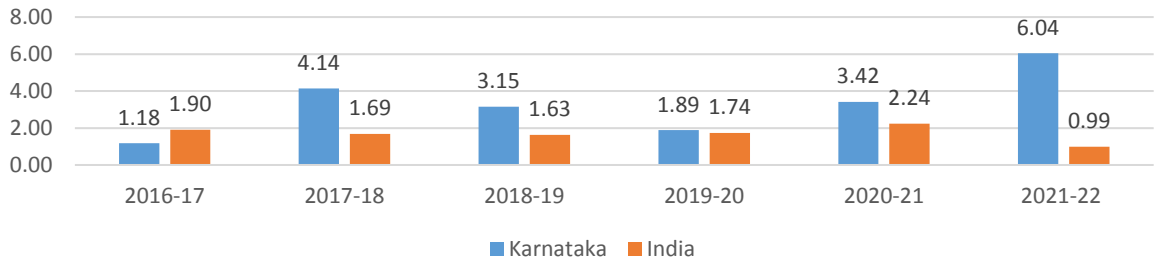
States	Total FDI inflows (US$ million)			
	2019-20 (October-March)	2020-21 (April-March)	2021-22 (April-September)	Cumulative total (October 2019 to September 2021)
1. Maharashtra	7263	16170	6595	30028
2. Gujarat	2591	21890	1502	25983
3. Karnataka	4289	7670	13954	25913
4. Delhi	3973	5471	5066	14510
5. Tamil Nadu	1006	2323	1130	4459
Total	19122	53524	28247	100893
Karnataka's share in total	**22.43**	**14.33**	**49.40**	**25.68**

Source: Department of Promotion of Industry & Internal Trade, Government of India (New Delhi)

3.1.4. Degree of openness to international capital of Karnataka

Karnataka's degree of openness to international capital or internationalization of capital is measured by share of FDI inflows in Gross State Domestic Product (GSDP). This is an important indicator of economic globalization of finance/capital. Correspondingly, India's degree of openness to international capital is measured by share of FDI inflows in Gross Domestic Product (GDP). **Figure 3.1** shows that, over the period 2016-17 to 2021-22, Karnataka's degree of openness to international capital is highest in 2021-22 (6.04 percent) and higher than at all India level in all years except in 2016-17.

Figure 3.1. Degree of openness to international capital: Karnataka and India



Source: (a) Directorate of Economics and Statistics, Government of Karnataka (Bengaluru), (b) Medium Term Fiscal Plan 2021-2025, Finance Department, Government of Karnataka (Bengaluru) and (c) Department of Promotion of Industry & Internal Trade, Government of India (New Delhi)

3.1.5. Investment promotion policies and programmes in Karnataka

Promotion of domestic and foreign private investments is an important component of the general industrial policies. For instance, the key objectives of the New Industrial Policy 2020-25 include the attraction of investments worth Rs.5 lakh crore, employment generation of 20 lakh people and to reach 3rd place in merchandise exports in India. The Policy aims at encouraging investments in both traditional and emerging sectors, comprising MSMEs, startups and large scale industries in manufacturing and services. In addition, sector-specific policies have been formulated and implemented by the Government of Karnataka, especially for information and biotech sectors. These policy promotions are in various forms, such as, fiscal and financial incentives, public investment on infrastructure support, and facilitation and creation of good investment climate, skill development and capacity-building for entrepreneurship. In general, policies and programmes of Government of India (GOI) are contributory by their supplementary roles for attraction and location of investment activities in the State.

Select and currently operating sector-specific policies and programmes of Government of Karnataka, as they are related to investment promotions including public investment for institutional and infrastructure supports, are highlighted below. The select policies are Karnataka Biotech Policy (2017-22), Karnataka IT Policy 2020-25 and Karnataka's Electronics Systems Design and Manufacturing Policy 2017-22. The extensive and diversified supports under these policies through the public investments are complementary to attraction and growth of private Indian and Foreign investments in the State.

3.1.5.1. Karnataka Biotech Policy (2017-22)

Karnataka was one of the states in India to frame an industry-oriented biotechnology policy called Millennium Biotech Policy in 2001 and a revised Millennium Biotechnology Policy – II (2009 – 2014). The present Karnataka Biotechnology Policy – III (2017 – 2022) aims at integration and adoption of new and emerging technologies as well as utilize the new developments in the rapidly advancing field of biotechnology for finding new solutions to the persisting challenges in the State. The policy also aims to capture 50% share of the national bio-economy target of US$ 100 billion by further enhancing "Ease of Doing Business" and strengthen relationships with other relevant departments in the Government.

Karnataka has achieved US$24.4 billion BioEconomy or registered an annual growth rate of 8% in FY 2020-21 by overreaching the projected target of US$22.9 billion for FY2021. However, the annual growth rate in 2020-21 was lower than in FY 2019-20 (17%) and 2018-19 (15%) due the prevalent general economic conditions. BioPharma and Medtech including diagnostics are the two crucial segments that have triggered Karnataka's growth. In fact, COVID-19 pandemic opened up new opportunities in the sector and, in the current FY 2021-22, COVID-19 Vaccines and Testing have been a significant component of the BioEconomy. The industry has registered about 217 percent growth by reaching US$800 million in the first half of 2021-22 and projected to reach US$1.5 billion by the end of FY2021-2022. Major segments of Karnataka's BioEconomy includes BioPharma (20 percent share), Medtech and Diagnostics (17 percent share) and BioAgri (19 percent share). At the current rate, the BioEconomy of Karnataka is estimated to reach US$28-30 billion by March 2022. On an average 7-8 Bioscience companies have been started every month. Karnataka is home for 70 companies since January 2021. BioEconomy of Karnataka for FY2020-21 was valued at 11% of the Gross State Domestic Product (GSDP).

Institutional infrastructure and promotion of entrepreneurship for Biotech sector

The Bengaluru Helix Biotech Park was conceptualized with the following components: Institutional Area to carry out cutting edge R&D, Innovation Area for startups to create distinctive products and innovations in the sector and Industrial Area for enterprises/MNCs to facilitate biotechnology industry. The first two components have been successfully developed with an investment of over Rs.150 crores for the last 11 years to build, develop and support institutional and innovation areas in the Bengaluru Helix Biotech Park.

The institutional area of 20 acres houses Institute of Bioinformatics and Applied Biotechnology (IBAB) and Centre for Human Genetics (CHG). The innovation area of about 10 acres has a state-of-the-art Incubation Facility at Bangalore Bioinnovation Centre (BBC) for setting up of Incubation and common instrumentation facilities across Karnataka to accelerate innovation and supporting the infrastructure facility for the institutes.

K-tech Innovation Hub - Bangalore Bioinnovation Centre (BBC) is an initiative of Karnataka Innovation Technology Society (KITS), Department of Electronics, IT, BT and S&T, Government of Karnataka with funding support from Department of Biotechnology (DBT), Government of India. It is located within Bengaluru Helix Biotech Park at Electronic City on a 10 acre campus with total built up area of above 60,000 sq. ft. It provides incubation, mentoring support, funding opportunities, branding support and networking support besides laboratories and equipment. BBC caters to the broad areas of Life Sciences i.e., Healthcare (MedTech & Pharma/Bio-Pharma), Agriculture, Food/ Nutrition, Industrial Biotechnology and Environmental Biotechnology. Additional 15,000 sq. ft. space to meet the growing demand for the incubation is under progress. The highlights of FY 2021-22 are as follows:

100% occupancy within five years of its operation and currently 55+ Startups are availing the facility

BBC's support to start-ups has resulted in launch of 25+ products, generation of 400+direct employment opportunities.

State-of-art MedTech facility established with support of Rs.4.5 crore received from BIRAC, Government of India, and matching grants from Government of Karnataka. The MedTech Centre has Elec-

tronics Prototyping Lab: Soldering Stations, Reference Electronic Circuit Boards Oscilloscope, DC Power Supply, IOT Kits (WIFI+GPRS+GPS+4G), Embedded Display Kits, Wireless Cloud Servers, Reference Connectivity Modules, Software Lab: Microsoft Visual studio 2017 and Bench Space.

Farm innovation Centre to be established at BBC at total cost of cost of Rs.20 crores sanctioned under Rashtriya Krishi Vikas Yojana (RKVY).

Has funded 5 bio-startups with Rs.30 lakh on equity-basis from the funds received from Biotechnology Industry Research Assistance Council (BIRAC), Department of Biotechnology, Government of India under Sustainable Entrepreneurship and Enterprise Development (SEED) Fund and contribution from Government of Karnataka with similar funds.

Facilitated the launch of 25+ products developed by incubated bio-startups for mitigating COVID-19 spread.

Institute for Bioinformatics and Applied Biotechnology (IBAB), Bengaluru

IBAB is a non-profit autonomous institute set up by the Department of Electronics, IT, BT and S&T, Government of Karnataka. IBAB is established to undertake research and development in advanced areas of Biotechnology including Bioinformatics, Cancer Biology, Synthetic Biology, Structural Biology, etc., to produce skilled manpower in these areas for the benefit of growing Biotechnology industry in the state. For instance, IBAB continues to offer PG Dip., M.Sc and Doctoral programs in the areas of Bioinformatics & applied Biotechnology offers PG Diploma in Bioscience Policy Research in collaboration with Takshashila Institute, Bengaluru. In addition, it started PG Diploma in Big Data Biology in collaboration with IIIT-B and supported by Department of Biotechnology, Government of India.

The BUILDING BHARAT BOSTON BIOSCIENCES PROGRAM (B4) is being implemented by IBAB in partnership with IISER-Pune and the Lakshmi Mittal South Asia Institute (SAI), Harvard University, and is funded by the Department of Biotechnology, Government of India. The aim of the program is to build a scientific research corridor between India and Boston in the areas of biosciences and biotechnology through the development of partnerships with leading institutions in India and the US. B4 Phase II program support ended on 31st March 2021 and objectives has been successfully completed. Further, IBAB has started construction of a vertical extension in support of expanded academic and R&D activities. An amount of Rs.300 lakh annual grant was sanctioned for FY 2021-22 towards maintenance and academic activities and Rs.225 lakh has already been released.

As part of capacity building of resources in emerging areas of biotechnology, the following projects are being implemented with the support of State Government.

i) Synthetic Biology Group at IBAB

Government had approved establishment of Synthetic Biology Group with total budget of Rs.9.85 crores for a period of 5 years. The main objectives of the project are (a) creation of tools and technologies for translational research, (b) performing translational research to develop products and technology with applications in areas of high socio-economic impact suitable for licensing and (c) creation of a pool of skilled and trained manpower in synthetic biology through workshops. The group has successfully developed and established several tools, reagents and technologies useful for translational research

activities and routinely uses them in the lab to generate new genes and customized genetic elements which include: template-less PCR, DNA vectors, novel yeast expression vectors based on synthetic promoters and transcription activators to create a library of yeast strains capable of protein expression, cloning of multiple promoters, reporter genes, terminators, etc., Multiple translational research projects are ongoing and have reached the proof-of-concept stages. Two new projects on developing biosensors and producing high value chemical compound in Cyanobacteria have been initiated. A total of Rs.495 lakhs have been released so far towards the program which includes Rs.75 lakhs released during the FY 2020-21.

ii) Bio-IT Centre (earlier GANIT Labs)

Bio-IT Centre established at IBAB for undertaking training and collaborative research in the area of Genomics by utilizing the Next Generation Sequencing facilities at the Centre at total project cost of Rs.1433.52 lakh with Government of Karnataka supporting Rs.946.02 lakh over 5 years period. Under the project, hands-on NGS-sequencing and analysis workshops have been regularly conducted to graduates, post-graduates, doctoral degree students, faculty, scientists and industry executives. Several collaborative research programs and publishing of research papers in peer reviewed international journals and conferences is carried out under the project. A total of Rs.575 lakh been released so far towards the program which includes Rs.75 lakh released during FY 2020-21.

iii) CHG (Centre for Human Genetics) Bengaluru

CHG is a non-profit autonomous centre engaged in advanced research, teaching and training in areas which lie at the interface of modern genetics and medicine. CHG is a pioneer in research, diagnosis, and management of rare genetic disorders. Besides research and teaching, the Centre provides comprehensive clinical services, including genetic counseling to patients carrying a range of genetic disorders and in-born errors of metabolism. CHG is affiliated to Bangalore University for awarding the M.Sc degree and Manipal Academy of Higher Education for awarding Ph.D degree. During the last three years, the Centre has provided diagnostic & counselling services to over 27,000 families with genetic disorders. These services are provided free of cost to BPL families from the support provided by the department. GoK has provided an annual grant of Rs.150 lakhs for the FY2021-22 and Rs.125 lakh has been released.

iv) Bengaluru Helix Biotechnology Park (Industry Zone)

Bengaluru Lifesciences Park is being developed to have best-in-class laboratory infrastructure to support a host of R&D activities to have 60% of the area reserved for biotech/lifesciences companies. It is estimated that industry zone with 150+ biotech/ lifesciences companies and over 50000+ employees will be the growth engine of biotech sector in the State. The park will have a dedicated incubation space with shared instrumentation lab facilities and customizable fully fitted lab and office suites. It will also house laboratory building for mid-sized companies with modular lab suite options and shared conference rooms, training rooms and cafeteria.

v) K-tech Innovation Hub by University of Agriculture Sciences, Dharwad

This project was initiated on 12th March 2015 via a MoA between KITS and University of Agricultural Sciences (UAS), Dharwad to establish Agri Incubation Centre and Common Instrumentation Facility (Agri-IC_CIF) to focus on promoting Agriculture and Agricultural

Biotechnology industry in the state. The Incubation-cum-Common Instrumentation Facility has been established with a total budget of Rs.6.49 crores. Currently three startup companies are incubated at the centre.

vi) K-tech Innovation hub by Central Food Technological Research Institute, Mysuru

A Nutra-Phyto Incubation Centre and Common Instrumentation Facility (NPIC_CIF) was initiated at Central Food Technological Research Institute (CFTRI), Mysuru on 21st October 2014 via a MoA between KITS and CFTRI for nurturing entrepreneurs in the area of nutraceuticals and functional foods for accelerated research, scale-up and efficacy studies all through a single point of access. This facility is now fully operational. It has a total of 12 Bio-Suites and 9 are already occupied.

vii) Centre for Biotechnology Research, Bagalkot

Centre for Biotechnology Research (CBR) has been set up on 23rd November 2013 with total budget of Rs.8.5 crore. Common instrumentation facility and incubation space with a total area of 26,436.16 Sq Ft area has been developed with an area of 5000 Sq Ft for 6 Bio Suites. These centers will facilitate the development of biotech start-ups and provide them quality infrastructure facilities for R&D, research translational opportunities and mentorship from experts.

viii) Institute for Agricultural Biotechnology (IABT) at UAS, Dharwad

Started in 2002 with seed funding from the Department of Electronics, IT, BT and S&T, GOK, IABT offers M.Sc and Ph.D. Degrees in Molecular Biology and Biotechnology and other domains of Agriculture Biotechnology. IABT has also been awarded Rs.6.49 crores to set up Incubation Centre and Common Instrumentation Facility for entrepreneurship.

ix) Karnataka Startup Advancement Program Bio 50 (K-SAP Bio-50)

K-SAP Bio-50 is an integrated, comprehensive program initiated by the Centre for Cellular and Molecular Platforms (C-CAMP) and is supported by the Department of Electronics, IT, BT and S&T, Government of Karnataka at a total cost of Rs. 333.90 lakhs targeting 50 startups during the three years of project period. The objective of K-SAP BIO-50 is to provide necessary impetus to life sciences startups early on in their entrepreneurial journey by identifying gaps and providing the required mentorship, knowledge, and network in a structured format to increase the chances of success of biotech Startups. This program is aimed at increasing the chances of success of Startups by providing one-to-one Mentoring Sessions, performance assessment session, Workshops, Training Programmes, Seminars, Networking Events, International Partnering Meetings and Ancillary Facilitation. In the first cohort, eleven (11) startups were mentored. In the third cohort, nine (9) startups have joined the program in 2021-22. The empaneling of Anchor Advisors, evaluating requirements of each startup in cohort, and identifying anchor Advisor, introduction and discussion with Startups on Anchor Advisors, Regular fortnightly Advisory Meetings are in progress.

x) K-tech Centre for Excellence (COE) by C-CAMP

A Centre of Excellence for Agri Innovation has been established at Centre for Cellular & Molecular Platforms (C-CAMP) to promote deep-science/technology driven entrepreneurship in the agri sector, leading to innovation, economic development and job creation in the agricultural domain. A Core Advisory Committee comprising national and international experts to advice on the scheme has been formed. This committee is

a high level 'think tank' to strategize, monitor and advice on broad aspects of the centre including areas of focus, curation of challenges/gaps identified through immersion, solutions being developed & deployment of the same. With the assistance of the Agri CoE fellows selected under the program, the Core Advisory Committee has identified top 12 problems and further recommended 3 problems for the next of phase of the program i.e., Call for Grand Challenge. On 23rd July 2021, Agri Grand Challenge with three problem statements related to agriculture was launched. Selected startups shall be provided with seed funding up to Rs. 25 lakh, incubation and mentorship support by C-CAMP-UAS, Bengaluru. The project with total budget of Rs.15 crore for a period of 5 years to be shared in the ratio of 25:75 between Department of Electronics, IT, BT and S&T and Agriculture Department.

xi) Human Resource - DBT Skill Vigyan State Partnership Programme

A Skill Vigyan Centre has been set-up at Karnataka Innovation and Technology Society (KITS), with the support of Department of Biotechnology, Ministry of Science & Technology, Government of India. The Department of Biotechnology, GOI has initiated Skill Vigyan Programme in Life Science & Biotechnology for providing quality hands on training in tools and techniques in multidisciplinary areas of biotechnology for entry level students (10+2 and Graduates in Biotechnology), Refresher/Faculty training in advanced and emerging areas of Life Science and Biotechnology for UG &PG Teachers and Mid-career Scientists engaged in teaching and research, enhancement of entrepreneurial skill sets among students under Entrepreneurship Development Programme and Finishing School Programme for industry ready skilled manpower in partnership with State and Union territories through hub & spoke model. KITS has entered into a MoA with 7 partner institutes for providing Faculty Training Program and Entrepreneurship Development Program under DBT Skill Vigyan State Partnership Programme in Life Science and Biotechnology. A sum of Rs.32.00 lakhs grant amount has been released towards 1st year expenditure out of Rs.78.80 lakhs sanctioned for the implementing the programme.

xii) KITVEN Fund-3 (Biotech)

Bio Venture Capital fund of Rs.50 crore has been registered with SEBI to partner with Government of Karnataka. This will offer equity-based funding to the biotech companies in need of mid–to late stage funding. The Fund proposes to invest in companies catering to Biotechnology and such other allied sectors within the State of Karnataka. The investment in companies will be in the nature of equity, preference capital (convertible/ redeemable), debentures or combination of any of the above instruments adhering to the guidelines issued by the Securities & Exchange Board of India (SEBI) from time-to-time. The typical investment horizon would be 3-5 years although lower periods would also be considered. Name of the subscribers and their committed amount is as follow.

Sl. No.	Name of the Subscriber	Amount of funds committed
1.	KITS (including Agriculture Department, GoK, KITS)	Rs.18 crores (including Rs.5 crore from Agriculture Department, GoK)
2.	KSIIDC	Rs. 5 crore
3.	SIDBI (Managers of Fund-of-Funds for Startups, Govt. of India)	Rs. 5 crore or 10% of the committed corpus, whichever is less

Sl. No.	Name of the Subscriber	Amount of funds committed
4.	BIRAC, Govt of India	Rs. 4 crore
5.	KSFC	Rs. 5 crore
	Total	Rs. 37 crore

In addition, the Investment Committee has given in-principle approval to invest in seven more companies with a total budget of Rs. 18.25 crores.

xiii) Bengaluru Tech Summit 2021 – Biotechnology Park

The Bengaluru Tech Summit 2021, Asia's Largest Technology Event held in hybrid mode between November 17-19, 2021, was organized by the Department of Electronics, IT, BT and S&T, Government of Karnataka. This was 24th edition of Bengaluru Tech Summit with its theme 'Driving the Next' accelerating the growth of technology and global businesses, despite the challenges of the pandemic. The theme for IndiaBio@BTS was designed with 'Next Wave is Innovation', a worldwide gathering of Industry Leaders, Top Research Think Tanks, Academics, Policymakers to explore new frontiers in biotech research and business. Innovation and Collaboration are going to be the driving factors for the industry in the coming year.

xiv) Technology Business Incubator

Business Incubation has been globally recognized as an important tool for job creation and economic development. This programmes intends to support Technology Business Incubators primarily in institutions with strong R&D focus to tap innovations and technologies for venture creation by utilizing expertise and infrastructure already available with the host institution. In order to foster strong partnership between R&D institutions and industry, the Karnataka Startup Policy 2015-20 had envisaged for supporting establishment of TBI for promoting Innovations in thrust areas such as ICT/IOT/ Software Products, ESDM, Robotics, 3D Printing, Healthcare and Biopharma, Agriculture & Allied Fields, Clean Tech, Energy, Water & its recycling, Education, Nanotechnology & Composites.

TBIs are intended to bring academia, industries, and financial institutions to one platform and promote/nurture novel technology/innovation coming out of such association. Also, the startups will have Infrastructure, equipment, mentoring, branding, networking, legal, financial, technical, intellectual property related services all in one roof to build a vibrant startup ecosystem within the academic setup. Government of Karnataka is supporting establishment of the TBIs at MS Ramaiah University in Bengaluru, Indian Institute of Science in Bengaluru and MAHE in Manipal (Udupi).

The Agri - TBI established at C-CAMP and Department of Biotechnology, University of Agricultural Sciences, Bengaluru is now combined with the Centre of Excellence for Agri Innovation program at C-CAMP jointly supported by Department of Electronics, IT, BT and S&T and Department of Agriculture in order to consolidate the resources and provide enhanced support to agri-startups.

Currently, a total of 57 incubated startups are benefiting under the program that includes, usage of high-end equipment, mentorship, networking opportunities, market access and other support provided by the host organization. Out of the total budget outlay of

Rs.2971 lakh for a period of 5 years, so far a total of Rs.2072 lakh has been released under the TBI program.

3.1.5.2. Karnataka IT Policy 2020-25

Karnataka IT Policy 2020-25 has distinct incentives being offered to new IT / ITeS and other knowledge based sectors to set up their facility in Tier 2/3 Cities across Karnataka. These incentives are as follows.

- ❏ IT Hubs/Cluster: Financial support of up to 20% of fixed investment for infrastructure, with a ceiling of Rs.3 crore.
- ❏ Co-working Spaces /Plug and Play Infrastructure: Financial support of up to 33% of the fixed investment for infrastructure, with a ceiling of Rs.2 crore.
- ❏ Lease/Rental Reimbursement: Up to maximum of Rs.3 lakh @ of Rs.10/Sq.ft and of Rs.6 lakh @ of Rs.1000 per seat.
- ❏ Mega Projects /Enterprises: Tailor –Made packages on a case to case basis.
- ❏ Stamp Duty Exemption of 75% in Mysore, Hubballi-Dharwad and Mangalore, 100% for all other Zones except Zone-3.
- ❏ Industrial Power Tariff instead of Commercial Power Tariff for IT/ITES Industry.
- ❏ FSI, FAR : To provide built-up space at affordable rates to IT/ITES industry.
- ❏ Quality Certification Cost Reimbursement maximum of Rs.6 lakh.
- ❏ Marketing Cost Reimbursement maximum of Rs.5 lakh.
- ❏ Reimbursement of PF/ESI of Rs.2000 per month per employee for 2 years for all new employment created in Tier 2/3 Cities.
- ❏ Patents cost reimbursement maximum of Rs.2 lakh for Domestic and Rs.10 lakh for international.
- ❏ Returning NRI encouragement Scheme.
- ❏ Open data initiative: In line with the Government of India's National Data Sharing and Accessibility Policy (NDSAP) 2012 and the Open Government Data.
- ❏ Exemption of Karnataka Industrial Employment (Standing Orders) Rules, 1964 to IT / ITeS / Start-ups / other Knowledge based industries for a period of 5 years.
- ❏ Talent Development: National Apprenticeship Training Scheme, YUVA YUGA , Virtual Incubation & Mentorship, Finishing School.
- ❏ Incentives available only for direct end users.

K-Tech Centre of Excellence for Data Science and Artificial Intelligence by NASSCOM

The K-Tech CoE – DSAI has been established with a vision to put Karnataka in the global map of top 3 destinations for Data Science & Artificial Intelligence. This will further strengthen the State's DS & AI ecosystem and will provide a platform for AI and technology collaboration between various stakeholders. As per the KPMG Global Technology Innovation Report 2018, Bangalore is one of the TOP 10 global innovation hubs and counted amongst the likes of Tokyo, London, Beijing, Tel Aviv, New York etc.

India's first Centre of Excellence for Data Science and Artificial Intelligence (CoE DS&AI) in Bengaluru was inaugurated on 5th July, 2018. It is set up in association with NASSCOM. Since then, there has been tremendous growth in the AI ecosystem in the state. The state is the hub for AI start-ups, accounting for 23-25% of the 1000+ AI startups in the country, 40% of the AI talent is located in the state as per a survey of open job positions in AI and more than 20+ AI CoEs have been set up by global companies in Bengaluru. Further, the K-Tech CoE – DSAI has established a four-pronged program that focuses on

start-up acceleration, skilling and advocacy in AI and data sciences, co-innovation with enterprise and research papers that provide a playbook for AI adoption in agriculture, healthcare, retail and financial services.

Government of Karnataka in association with the Department of Science & Technology has set up the Artificial Intelligence & Robotics Technologies Park (ARTPARK) at IISc Bangalore. ARTPARK would promote technology innovations in niche areas by executing ambitious projects in various sectors by focusing on problems unique to India. The state has also announced a CoE on AI and Data Intelligence at Hubballi with a clear focus on Beyond Bangalore.

K-tech Centre of Excellence in Machine Intelligence & Robotics by IIIT-Bengaluru

The Department of IT, BT and S & T in association with IIIT-B has set up a K-Tech Centre of Excellence on The Machine Intelligence and Robotics (MINRO) at cost of Rs. 34.70 crore. MINRO Center's broad charter is to carry out high quality and ground breaking research in the area of Machine Intelligence and Robotics that benefit entire state of Karnataka. The Center is also expected to support popularizing of technology within the state of Karnataka by conducting various conferences as well as topical lectures discussing various issues in Artificial Intelligence and Robotics. The Center currently funds 26 research projects, of which 7 are new projects initiated in the last one year. The Center supports 9 PhD students, 8 MS students and 10 research associates working on these projects. The Center also supports development and commercialization of technology in collaboration with start-ups. The Center has been working with 4 start-ups in Karnataka in variety of areas, such as, Assistive robotics for spinal cord injury patients, Open-source ventilator, Electric warehouse robots, PoC of Virtual Interviewing Agents - UPSC Mock Interview Assisting System, and camera based intelligent security solution. In addition, the Center communicates the advances of technology to audiences worldwide in order to establish Karnataka as a premier center of research and development in AI and Robotics.

K-tech Centre of Excellence in Aerospace and Defence by Dassault Systems Pvt. Ltd.

The Department of IT, BT in collaboration with Dassault Systemes & VTU established K-Tech Centre of Excellence in Aerospace and Defence with the objective of Skill Enhancement and providing Industry-Ready manpower to this sector in Karnataka. The K-Tech Centre of Excellence in Aerospace and Defence would provide high-end training and skill enhancement in the Aerospace and Defence space sector. The contribution from Government of Karnataka is Rs.33.46 crore. The training and other industry building activities are carried out at the Centre. The Courses at K-tech CoE A&D are delivered by Aerospace Industry Experts and Lab Trainers with industry experience. The Digital Lab exposure acquired at the Centre are process driven and can be applied to all technical domains, not restricted to Aerospace. Further, courses conducted in Centre, across Colleges / Institutions/ Universities and also remotely by 'On-Line' mode.

K-Tech Center of Excellence in Cyber Security by IISc

The K-Tech CoE in Cyber Security was formed in 2017 by Govt. of Karnataka, as part of the Technology Innovation Strategy, to promote the cyber-safe and conducive environment for industry collaboration, address the skill gaps, build awareness and facilitate innovation in the emerging technology field of Cyber Security. The Center of Excellence (COE) shall also facilitate standardization and best practices for information security across industry domains, foster innovation, research & development and conduct some of the high-end-

in-house-training programs within Cyber Security Technologies. To achieve this, CoE collaborates the Academic Institutions, Government & Industry. Institutions like Indian Institute of Science (IISc) is well equipped to achieve these objectives, while Government would provide needed guidance and funding. The Government has nominated Indian Institute of Science (IISc) as the Anchor Institution and KSCST as the Implementing Agency. Thus the CoE is being set up to formalize and achieve the objectives with more specific focus on: Creating a Pool of Internship, by undertaking programs in coordination with the Industry; Incubation of Startup and provide them a suitable Eco-system through CoE; Build the facility to have an in-house training facility that can train students/ professionals, towards building the Skill Capacity in Cyber Security areas; Foster and Achieve a thought leadership through CoE in Advanced Technologies in Cyber Security; and Create awareness among professionals and Industry through monthly workshops, webinars etc. However, cyber security is a dynamic field where the both the concerns and solutions keep evolving on a rapid basis. Though certain deliverables are identified aligned to focus areas, they are modifiable as per guidance from the industry/ Governing council.

IDEA2PoC/ Elevate Grant in Aid Seed Funding Scheme

Idea2PoC – a scheme to provide early stage funding to ideas or concepts which are yet to establish the proof of concept in the real world, up to INR 50 lakh. Till date, 11 calls have taken place and around 488 Startups/ Ideas have been selected for funding. The total committed fund is Rs. 116.65 crores.

3.1.5.3. Karnataka's Electronics Systems Design and Manufacturing Policy 2017-22

The Government of Karnataka, through KITS, has announced the new ESDM Policy 2017-22 on 1st December 2017, offering ecosystem support and various incentives/concessions to ESDM companies of the State. The vision of the Policy is to develop Karnataka into a global ESDM hub and a hotbed of innovation through focused interventions and encouragement to local companies in the sector. The policy aims to foster high growth for the ESDM industry, which can be achieved by attaining the following goals.

a. Stimulate the growth of 2000 ESDM startups during the policy period.

b. Enhance value addition done in Karnataka by 50%.

c. Create 20 Lakh new jobs in the ESDM industry by 2025. both direct and indirect, and thereby increase the total workforce in the sector by ten times.

d. Effect a quantum jump in the overall revenues of Karnataka's ESDM companies to US$ 40 billion by 2025.

e. Significantly grow the ESDM exports from the state to US$ 16 billion by 2025.

The strategies to achieve the above goals include the following.

Skill Development: Continue to focus on skill development and nurturing of the talent pool by re-fining and strengthening the existing initiatives; introduce new and strategic interventions for focus sectors.

Quality Infrastructure: Create common infrastructure facilities and center of excellences (CoEs) in specific areas, to provide an impetus to local industry; and encourage new investments and growth

in tier-2 cities across the state.

Ecosystem Support: Operationalize PMA policy to encourage domestic procurements; accelerate next generation technologies through pilot projects and encouragement to grass-roots entrepreneurship and IP creation.

Encouragement to Start-ups and MSMEs: Strengthen the existing Semiconductor venture fund for accelerated investments; and promote expansion and growth of KESDM industry through market development activities and support to local companies.

Enhancing Ease-of-doing Business: Simplify and streamline policies and procedures to enhance overall experience of doing business in the state; and put in place mechanisms for faster facilitation of incentives and other policy benefits to attract investments from global companies in the sector.

Up to now, 64 companies have registered under this Policy. Incentives to the tune of Rs 12.43 crore have been disbursed till date to the registered KESDM companies, apart from other concessions given to the companies.

Brownfield KESDM Cluster at Mysore

This EMC is being established under the EMC Scheme of MeitY, Government of India, supported by Government of Karnataka and private partners. CFC will function as a service provider to assist the firms seeking services in innovating and developing new products; producing value added products; enhance productivity; and meeting international regulatory requirements. This facility will cater various testing, quality and regulatory needs of the industry. It aims to provide services to entire electronics industries comprising industries like Medical Devices, IT hardware products & sub-assemblies/ components, power and energy products, Automotive Industries and Aerospace. It will have state-of-the-art facilities for the local ESDM industry to enable them to move higher up the product value chain. The total project cost initially was Rs 29.53 crore which got escalated to Rs.48.53 crore. Govt of India has approved the cost escalation and has approved for additional grant of Rs.11 crore. The EMI/EMC lab is being setup and the facility would be inaugurated shortly.

Brownfield ESDM Cluster at Hubballi

The Brownfield ESDM Cluster is set up in Sandbox Startups (Foundation of Sandbox Startups Initiatives), a thriving business incubator, an initiative by Government of Karnataka in association with Deshpande Foundation & IESA, in Hubballi in order to promote ESDM sector in the North Karnataka region to develop indigenous products, by providing them office space with plug-and-play facilities at subsidized rates.

Brownfield ESDM Cluster focuses on proof of concept level startups to MSME's. In addition, the cluster will provide a plug-and-play facility with suitable office environment along with common instrumentation facilities for developing their prototypes. ESDM cluster's major emphasis is to work with the scalable startups and play critical role to create an ecosystem which is conducive for the electronic and allied sector growth in the north Karnataka and surrounding areas. The facilities of the cluster are being used by the Startups and MSME's.

VLSI Incubation Centre at Hubballi

The VLSI incubation is being set up in Bhoomaraddi College of Engineering and Technology, Hubli/KLE Tech University, Vidyanagar, Hubli in association with IESA (India Electronic Semiconductor Association). This Center works with the startups or incubatees

who are interested to design semiconductor chips. The incubation center helps the incubatees with the access to the IPs. It also helps the startups to create IPs in-house which can be further used by Semi-Conductor Labs or any other fabs which want to invest in the incubation. This will create an IP infrastructure enable & develop the entire indigenous IP ecosystem which can be further accessed by the various startups.

Incubation center has also identified the Electronic Design Automation (EDA) software's required and reached out to the various EDA companies in order to partner with them who can in turn help the incubates with access to the various licensed software as a part of initial investment. The project has been extended till 31st July 2022 without additional monetary benefits. The facilities in the incubation center are being used and currently 10 startups have been incubated.

Special Incentives scheme under ESDM

Government of Karnataka has announced the "Karnataka Special Incentives Scheme for ESDM Sector 2020 – 2025" on 7th September 2020, offering various incentives & concessions to eligible ESDM sector investments in the State. Capital Investment Subsidy, Reimbursement of Stamp Duty and Registration Charges, Reimbursement of Land Conversion Fees, Power Tariff Reimbursement, Exemption from Electricity Duty and Production Linked Incentive are being offered under this scheme.

K-Tech Innovation Hub by NASSCOM

The Government of Karnataka in line with its i4 policy has set up a K-Tech Innovation Hub by NASSCOM, which is relocated to HSR Layout, Bengaluru. It is spread over an area of 12,000 sq. ft. and has a seating capacity of 100 with a 100% power backup, leased internet line, a vibrant ambiance, Conference room with AV facility, over 10 meeting rooms, cafeteria and housekeeping facilities. The facility offers subsidized incubation space which will help the Start-ups to make use of the ecosystem and in turn help the companies which are in their nascent stages to attract angel investors, VC's and enterprises to play a major role in Bengaluru and helping more such Start-ups to thrive and succeed.

The 10,000 Startups Incubate (Warehouse) program is a premium plug-and-play co-working space for tech startups and the program offers access to a deep and wide-reaching network of investors, mentors, industry experts, and enterprises, which the startups can leverage to fast-track their growth and advancement. The program is also backed by a strong Steering Committee, members who come from diverse backgrounds within the startup ecosystem. From providing a physical workspace to expert guidance and unparalleled networking opportunities, the Incubate Program is the ultimate place for entrepreneurs to learn, network, and accelerate.

K-Tech Innovation Hub by IAMAI

K-Tech Innovation Hub at IAMAI has been established in association with IAMAI to strengthen the mobile app ecosystem in Karnataka with the objective to train mobile application developers and incubate them into entrepreneurship. The center will be relocated in K-Wings, HSR Layout, Bengaluru. This incubation center provides early stage Apps startups and developers highly affordable incubation space, training center, testing lab and design center. Mobile10X program offers: Mentorship by industry experts and domain specialists; Industry and investor connects; Advanced tools for testing and implementation; Dedicated support for design, development, testing; and

Regular interactions, seminars and workshops with peers and industry leaders. Select achievements under this Policy include the following. (a) 89 Startups are incubated at K-Tech Innovation Hub by IAMAI. (b) Startups incubated in K-Tech Innovation Hub by IAMAI have raised about Rs.20 crore funding

The Grand Challenge Channelizing Innovation for Social Impact

Grand Challenges - Karnataka is an initiative of the Government of Karnataka, to scout for new technologies or innovations that can offer solutions to some of the persistent social issues pertaining to the state of Karnataka. Grand Challenges, Karnataka aims to channelize innovations for social impact, and in the process support the establishment and growth of Start-ups. One of the primary goals of the policy is to "Facilitate generation of at least 25 Innovative Technology solutions with a social impact in various sectors like Urban Development, Health Care, Food Security, Clean Environment and Education for all etc". The Department intends to use the vibrant start-up environment in the State to drive technology based innovation to find workable and scalable solutions to challenges faced by it. The funding support offered by the Department under this scheme is in the form of grant-in-aid. The funding level is up to Rs. 10 lakhs each, monitored and nurtured over a six-month period under Phase I. After the completion of six months, one out of the selected innovations will be shortlisted for further funding of up to Rs. 50 lakhs for a period of 2012 –15 months for Phase II. In total, 24 startups have been selected to test and demonstrate their solutions/ products in the first phase I for 6 months duration with funding up to Rs 10 lakhs. Out of 24 selected startups, 8 have reached the Phase II for 12-15 months duration for pilot implementation with funding up to Rs 50 lakhs.

K-Tech Innovation Hub by IKP

Government of Karnataka has set up K-Tech Innovation Hub across the state in identified areas for e.g. Electronics, Mobile, Animation and Gaming, Design engineering etc. These facilities shall have necessary infrastructure for R&D labs, Common centre for prototyping, common testing/QA/QC labs, Fab labs etc. IKP Knowledge Park has been identified as the Program Partner for assisting KITS in managing the K-Tech Innovation Hub. IKP is a Not-for-profit Science Park and Incubator which has its operations in Hyderabad and Bangalore. Common Instrumentation Facility's established as on date are tech Innovation Hub at Belgavi, Jalahalli Metro Station, Bengaluru, Mangalore, Mysuru and Shivamogga.

K-tech Centre of Excellence on IoT by NASSCOM

The K-Tech Center of Excellence for IoT India, at Bengaluru, is a Digital India Initiative to jump start the IoT ecosystem in India taking advantage of India's IT strengths and help country attain a leadership role in the convergent area of hardware and software. The main objective of the K-Tech CoE IoT is to help Indian IoT Startups leverage cutting edge technologies to build market ready product. The IoT Startups Program, aims to build industry capable talent in an entrepreneurial ecosystem by providing Incubation, Funding, Acceleration, Industry Connect and Mentoring. To kick start the Government's 'Digital India' initiative a Center of Excellence for IoT at Bengaluru was established in July 2016. Jointly formed by MeitY (Ministry of Electronics and Information Technology), ERNET, NASSCOM and supported by Government of Karnataka. The premises is located in K-Wings, HSR Layout, Bengaluru

K-tech Semiconductor Fabless Centre of Excellence by IESA

Government has set up a K-Tech Semiconductor Fabless Centre of Excellence to provide Indian fabless semiconductor product companies easy access to (otherwise exorbitantly expensive) R&D infrastructure for e.g. EDA Tools, Design IPs (foundation IPs/ Core IPs), Foundry access – foundry design kits, subsidized test chip shuttles, Server Farm and other physical infrastructure, in order to enable them to successfully do their design to all the way to product prototypes.

It is conceived as one stop shop for India's fabless product companies and start-ups for providing state-of-art infrastructure, linkages to the stake holders of the eco-system, networks to mentors, industry and financial institutions and solutions to ease the business operations. This is in line with the budget announcement of the FY 2018-19, to promote Hardware Equipment and Semi-Conductor Chip Design and Development through the establishment of "Semiconductor Fabless Accelerator Lab" (SFAL) in association with India Electronics and Semiconductor Association (IESA). The center is operational in Bengaluru and currently supporting nine fabless companies, funding secured is US$ 2.4 million.

3.2. Exports from Karnataka

Karnataka has been a major traditional exporter of commodities like coffee, spices, silk, cashew nuts, handicrafts and agarabattis. Over last three decades, along with traditional commodities, Karnataka's exports have been diversified of electronic and computer software, engineering goods, readymade garments, petrochemical, agro and food processing products, chemicals, minerals and ores, marine products, etc. Karnataka has carved out a niche for itself in the global marketplace as the knowledge and technology capital in India. The State has made rapid and spectacular strides in the new economy. Public investments for development of information technology, biotechnology and research and development institutions have enhanced Karnataka's export performance at national and global levels.

3.2.1. Export performance of Karnataka

Visvesvaraya Trade Promotion Centre (VTPC) under the aegis of Department of Industries and Commerce, Government of Karnataka, is the nodal agency for promotion of export from the State. VTPC facilitates trade fairs and exhibitions to its SME's, artisans, and other stakeholders; conducts a plethora of sensitization and incisive training and capacity building programs across the exports, innovation management, entrepreneurship, international trade, and intellectual property rights landscape, among others; and implements various GoI and GoK programmes and Schemes for the promotion and facilitation of international trade as well as for integrated development of the export sector in the State.

VTPC has been unique in India for compilation of export data at State level since 1993. The compilation has been by 19 major export commodities. Exports from the State are contributed by production of goods and services in Electronics & Software Services, Aerospace, Petroleum Products, Precision Engineering Components, Readymade Garments & Silk, Pharmaceuticals, Coffee, Cashew, Medicinal Plants & Vegetable Extract, Rose Onion, Gherkins and Agarbattis.

Table 4.5 shows the trends in total exports (in value terms) from Karnataka from 2016-17 to 2021-22 (Up to September 2021). Total export has fluctuated over the years. It was about

Rs. 5,49,022 crore in 2016-17 and increased to Rs.6,59,425 crore in 2018-19 and Rs.7,03,101 crore in 2019-20. Subsequently, decline in value of exports is evident in 2020-21 and 2021-22 during the Covid-19 pandemic years.

Table 3.5: Total exports from Karnataka State: 2016-17 to 2021-22

Sl. No.	Commodity	Total exports from Karnataka (Rs. in crore)					
		2016-17	2017-18	2018-19	2019-20	2020-21	2021-22 (April to September 2021)
1	Electronics and Computer Software	419112.68	429342.77	544656.00	593422.70	586302.00	344079.87
2	Readymade Garments	14546.27	15169.76	15935.10	15707.11	12336.39	7429.67
3	Petroleum	11590.95	14419.17	25035.80	18025.00	7405.85	9576.78
4	Engineering	33275.54	37718.25	33420.30	35535.20	42290.11	34486.59
5	Iron Ore and Minerals	910.70	1734.28	2116.40	2209.26	2689.75	2071.33
6	Silk Product	379.08	303.92	320.60	283.80	290.82	247.53
7	Coffee	3284.48	3708.81	3131.80	2767.15	2982.20	2009.54
8	Basic Chemicals, Pharmaceuticals &Cosmetics	12910.05	14384.15	12296.90	13431.10	15180.14	13064.70
9	Agriculture & Processed food including seeds & beverages	4211.37	4217.59	5032.90	5128.11	7247.71	4531.76
10	Gems and Jewellery	35154.67	10235.83	570.30	351.73	182.26	125.73
11	Cashew & Cashew Kernels	1007.41	1215.31	850.30	797.92	668.15	286.68
12	Handicrafts	1114.69	1089.28	1448.40	1353.62	784.62	456.73
13	Leather Products	370.92	521.81	562.00	502.28	331.29	210.01
14	Chemicals & Allied Products	518.72	548.19	694.75	702.26	694.42	430.53
15	Marine Products	1052.16	1211.18	1275.90	1048.72	1118.06	555.52
16	Plastic Goods	892.65	987.43	1368.00	1222.13	1455.65	1149.96
17	Spices	318.42	329.79	724.80	509.76	807.64	501.79
18	Wool & Woolen Products	1.00	6.90	2.03	4,84	5.11	7.01
19	Others	8369.90	8635.91	9983.05	10103.16	10503.71	5734.41
	Total	**549021.66**	**545780.33**	**659425.3**	**703101.00**	**693275.9**	**426956.14**

Source: VTPC, Department of Commerce and Industries, Government of Karnataka (Bengaluru).

Table 3.6 shows the share of 8 commodities in Karnataka's exports which have at least one percent or higher share in annual total exports from Karnataka during 2016-17 to 2021-22. These 8 commodities together account for about 98 percent of total exports from Karnataka. Of all the commodities, share of electronics and computer software is most dominant and increasing over the years from 76.34 percent in 2016-17 to 82.60 percent in 2018-19 and 84.57 percent in 2020-21. Other important export commodities of Karnataka includes engineering, readymade garments, and petroleum. Jem and Jewellery, which contributed about 6.40 percent of Karnataka's exports in 2016-17 shows a steep decline to 0.03 percent in 2020-21. At the same time, increase in export share of Agriculture & Processed food including seeds & beverages is noteworthy in 2020-21 and 2021-22. This underlines the remarkable positive growth of agriculture sector in export sector during the Covid-19 pandemic.

Table 3.6: Share of commodities in total exports from Karnataka State: 2016-17 to 2021-22

Sl. No.	Commodity	Share of commodities in total exports from Karnataka (%)					
		2016-17	2017-18	2018-19	2019-20	2020-21	2021-22 (April to September 2021)
1	Electronics and Computer Software	76.34	78.67	82.60	84.40	84.57	80.59
2	Readymade Garments	2.65	2.78	2.42	2.23	1.78	1.74
3	Petroleum	2.11	2.64	3.80	2.56	1.07	2.24
4	Engineering	6.06	6.91	5.07	5.05	6.10	8.08
5	Basic Chemicals, Pharmaceuticals &Cosmetics	2.35	2.64	1.86	1.91	2.19	3.06
6	Agriculture & Processed food including seeds & beverages	0.77	0.77	0.76	0.73	1.05	1.06
7	Gems and Jewellery	6.40	1.88	0.09	0.05	0.03	0.03
8	Others	1.52	1.58	1.51	1.44	1.52	1.34
	Total	**98.21**	**97.86**	**98.11**	**98.38**	**98.29**	**98.14**

Source: VTPC, Department of Commerce and Industries, Government of Karnataka (Bengaluru).

3.2.2. Contribution of Karnataka's exports to India's total export performance

Table 3.7 shows the annual and commodity-wise contribution of Karnataka's exports to export performance of India from 2016-17 to 2020-21. Overall, Karnataka has been contributing about 18 percent of India's total exports in services and merchandise exports. The most remarkable contribution is evident in software and services exports (38 percent). Of the merchandise exports, Karnataka's pre eminent position in exports in 2020-21 is evident in coffee (86 percent), silk products (50 percent), and cashew and cashew kernels (22 percent). Emerging merchandise exports are in commodities, such as, semiconductor (15 percent), aerospace (24 percent), and engineering (9 percent).

It is important to emphasise that value of Karnataka's exports in FY2020-21 registered 6 percent growth to record US$2.9 billion in revenue. Major sources for this rise in export value are BioPharmaceuticals, drug research and delivery services along with BioIT and health services. The Biopharma exports driven by the insulin and anti-infectives recorded US$1.5 billion in export revenues. The Drug discovery and research, clinical management services along with digital heath accounted for another US$1100 million Marine exports touched $200 million, while enzymes and other products touched US$100 million in sales. By March 2022, the exports revenues is projected (Association of Biotechnology Led Enterprise) to increase to $3.5 billion and register 18% growth.

Table 3.7. Commodity-wise share of Karnataka's exports in India's exports: 2016-17 to 2020-21

Sl. No.	Commodity	Karnataka's state in India's total exports (%)				
		2016-17	2017-18	2018-19	2019-20	2020-21
A	Software and Service Exports	39.00	40.30	38.00	38.00	38.00
B	Merchandise Exports (Sl 1 to 21)	7.02	5.95	5.26	5.31	5.20
1	Semiconductor	22.35	25.18	20.66	11.89	14.80
2	Wool & Woollen Products	0.09	0.65	0.15	0.42	0.78
3	Silk Product	65.19	61.18	54.21	47.74	49.61
4	Readymade Garments	9.80	10.82	10.63	10.81	9.52
5	Aerospace	14.97	26.50	24.96	29.87	23.82
6	Petroleum	5.31	5.82	7.47	5.99	3.72
7	Engineering	9.08	8.45	7.97	8.69	9.28
8	Automobile	2.70	2.67	2.80	2.93	2.80
9	Iron Ore and Minerals	3.60	6.70	7.40	6.06	5.13
10	Basic Chemicals, Pharmaceuticals & Cosmetics	6.18	6.27	4.24	4.37	4.55

Table 3.7. Commodity-wise share of Karnataka's exports in India's exports: 2016-17 to 2020-21						
Sl. No.	Commodity	Karnataka's state in India's total exports (%)				
		2016-17	2017-18	2018-19	2019-20	2020-21
11	Agriculture and Processed food including seeds and beverages	3.68	3.36	3.52	3.81	4.00
12	Coffee	87.68	88.61	85.20	84.21	85.71
13	Cashew & Cashew Kernals	19.05	20.43	18.56	19.88	21.48
14	Spices	2.34	2.63	5.23	3.31	3.83
15	Marine Products	2.85	2.74	2.91	2.40	2.89
16	Gems and Jewellary	12.01	3.80	0.20	0.14	0.09
17	Handicrafts	1.45	1.44	1.66	1.88	3.34
18	Leather Products	1.71	2.45	2.45	2.42	2.03
19	Chemicals &Allied Products	1.64	1.52	1.41	1.35	1.28
20	Plastic Goods	2.51	2.41	2.44	2.49	2.86
21	Others	4.35	4.62	4.20	4.53	3.68
	Total (A+B)	**18.78**	**18.06**	**17.80**	**18.83**	**18.89**
Source: DGCIS, Ministry of Commerce, Government of India (Kolkata).						

3.2.3. Competitive districts of export performance in Karnataka

Government of India's District as Export Hubs Initiative has identified the products and districts with export potential. This identification is policy useful to prepare the district export action plans for such identified products and services for export markets in terms of policy actions required to support local exporters / manufacturers in producing/ manufacturing the identified products in adequate quantity and with the requisite export quality. Regular compilation of export performance data on these districts is useful for monitoring the periodic performance of export indicators. The Union Ministry of Commerce and Industry has latest release of data on 10th December 2021 on India's top 30 districts of exports and their top 5 exported commodities for the period April-September 2021. Three districts of Karnataka figure in this list as given in **Table 3.8.**

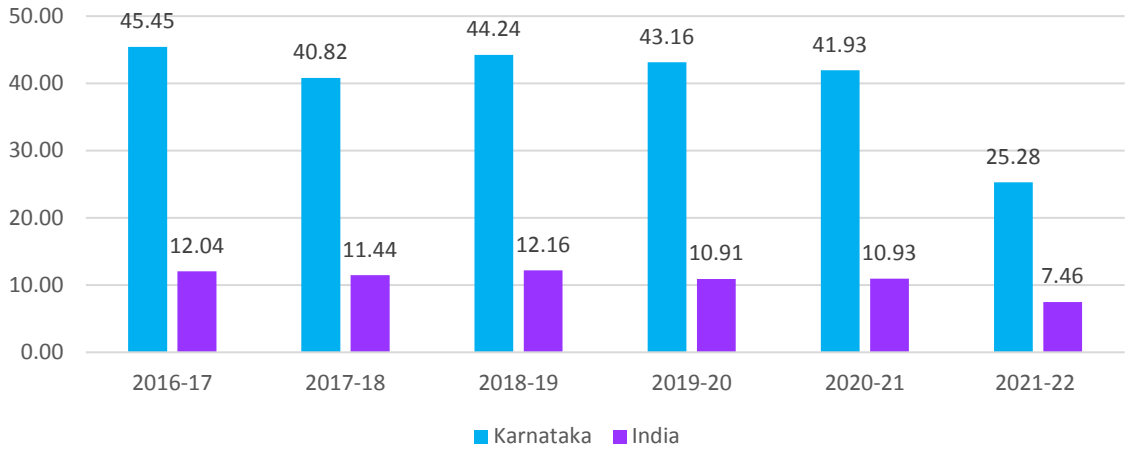
Table 3.8. Top export districts of Karnataka among 30 top export districts in India: April-September 2021				
Name of district	**Rank among 30 top districts of India**	**Total value of exports of the district (US$ million)**	**Value of top 5 exported commodities by the district (US$ million)**	**Name of 5 top exported commodities**
Bengaluru Urban	10th Rank	3749.18	3283.09	Engineering Goods; Electronic Goods; Readymade garments of all textiles; Drugs and Pharmaceuticals; and Organic and Inorganic Chemicals
Dakshina Kannada	17th Rank	2488.41	2368.94	Petroleum Products; Organic And Inorganic Chemicals; Iron Ore; Marine Products; and Engineering Goods
Bellary	26th Rank	1769.36	1754.98	Engineering Goods; Rice; Mica, Coal and Other Ores, Minerals including Process; Fruits and Vegetables; and Organic and Inorganic Chemicals
Source: Top Export Districts in the Country. Ministry of Commerce and Industry, Government of India (New Delhi).				

Thus, the exports of 5 top commodities constitute a remarkable share in total exports of the districts. This share is 87.57 percent in Bengaluru Urban district, 95.20 percent in Dakshina Kannada district and 99.19 percent in Bellary district.

3.2.4. Degree of openness to export trade of Karnataka

Karnataka's degree of openness to export trade is measured by share of exports in Gross State Domestic Product (GSDP). This is an important indicator of economic globalization of trade. Correspondingly, India's degree of openness to export trade is measured by share of exports in Gross Domestic Product (GDP). **Figure 3.2** shows that, over the period 2016-17 to 2020-21, Karnataka's degree of openness to export trade has been higher than 40 percent. In contrast, the degree of openness to trade at all India level has been below 13 percent. Due to Covid-19 pandemic effects, the exports from Karnataka and India have declined in 2021-22 (up to September 2021). Thus, the degree of openness to trade has declined at the state and national levels. Nevertheless, Karnataka's degree of openness to export trade in 2021-22 has remained higher (25.28 percent) than at national level (7.46 percent).

Figure 3.2: Degree of openness to export trade: Karnataka and India



Source: (a) Directorate of Economics and Statistics, Government of Karnataka (Bengaluru), (b) Medium Term Fiscal Plan 2021-2025, Finance Department, Government of Karnataka (Bengaluru) and (c) DGCIC, Ministry of Commerce, Government of India (Kolkata).

3.2.5. Policy support for exports from Karnataka

The Government of India is empowered to formulate all rules and regulations for foreign trade applicable for the country as a whole. The role of the State Government is complementary by way of providing supportive and special promotional measures for promotion and development of foreign trade, especially in regard to exports of goods and services. Key policy supports include the following.

i) General industry policy:

Government of Karnataka has been providing the export activities with various incentives and concessions as per the New Industrial Policy 2020-25, especially to the MSME sector to compete in the international market. In addition, export promotion is one of the ingredients of sector-specific policies, such as, Karnataka Biotech Policy (2017-22), Karnataka IT Policy 2020-25 and Karnataka's Electronics Systems Design and Manufacturing Policy 2017-22.

ii) Export Strategy of Karnataka:

Export Strategy of Karnataka has been brought out in collaboration with Federation of Indian Export Organizations (FIEO) to give a boost for the exports of the identified sectors from the State. This export strategy was announced on 10.10.2020 and cover a period of 5 years. The Strategy aims to facilitate exporters in the State through measures related to the policy, infrastructure, common facility, ease of doing business, promotion etc.

iii) Export promotional activities by VTPC:

In order to encourage growth and development of exports from the State, VTPC conducts various capacity building programs and provides services across market intelligence, export documentation and other critical areas to the exporting community. VTPC also conducts awareness programs, export management training programs for both prospective and existing exporters at district/potential places. VTPC has established Export Information Centres at Dharwad and Mysuru to facilitate exporters of the State.

The promotional activities of VTPC for exports are as follow.

a) Export Awareness Programs.
b) Export Training Programs.
c) Export Management Training Programs.
d) Seminars, Workshops & Conferences.
e) Interaction and Open House Meetings.
f) Market Development Assistance to Micro and Small Enterprises, and Artisans for participation in Domestic and International trade fairs and exhibition.
g) Participation in National/International Exhibitions & Trade Fairs.
h) Conferring State Export Awards for Export Excellence.
i) State Nodal Agency for TIES Scheme.
j) WTO and IPR facilitation.
k) Assistance to the traders/exporters in certification for the export/ import of commodities.
l) Secretariat services for promotion of SEZs and EOUs in the State

iv) Capacity Building programmes:

As part of capacity building initiatives, VTPC in association with DGFT / DIC's/ Chambers of Commerce/ Industry Associations/Exim Bank, etc., conducts Export Awareness Programs, Export Management Training Programs, Seminars/ Workshops and Interaction meetings at District/ Taluk level on a regular basis. About 26 promotional activities were held during the year 2020-21.

v) Geographical Indications Policy:

Government of Karnataka has come out with a first of its kind Geographical Indications (GI) Policy for the State, which aims to protect the traditional legacies of the State, assist and support infrastructure development required to strengthen the GI clusters in the State.

To take forward this policy initiative, VTPC has undertaken Diagnostic Studies of Seven GI Clusters in the State spanning Ganjifa Cards of Mysore, Mysore Traditional Paintings, Udupi Sarees, Bidriware, Mysore Rosewood Inlay, Udupi Mattu Gulla Brinjal and Udupi Jasmine. In addition, Karnataka is home to a total of 46 Registered GIs as on date. Further, the Authorised User base of various GI products in Karnataka currently stands at 414.

vi) SEZs in Karnataka

The State has 36 operational SEZ's comprising 502 units with an investment of Rs.1,02,754.54 crores and provided employment opportunity for 374728 persons.

vii) Software Technology Parks of India (STPI) in Karnataka

STPI is a premier science and technology organization under the Union Ministry of Electronics and Information Technology. It had its inception in 1991 in India with three centres including Bengaluru. At present, Karnataka has four sub-centres at Mysuru,

Mangaluru, Manipal and Hubballi. STPI-Bengaluru has been the backbone for the growth of software and hardware industry in Karnataka since last three decades and has enabled Bengaluru to emerge as one of the largest IT clusters across the globe and called Silicon Valley of India. Software exports (or IT-ITES) from STPI has been a contributing factors for Karnataka's phenomenal export performance. **Table 3.9** highlights the exports from STPI in Karnataka from 2016-17 to 2021-22 (up to December 2021).

Table 3.9: Total exports of IT/ITES from STPI in Karnataka and India: 2016-17 to 2021-22

Year	Exports from STPI in Karnataka (Rs. In crore)	Exports from STPI in India (Rs. In crore)	Share of exports from STPI-Karnataka in total exports from STPI-India (%)
2016-17	141846	350680	40.45
2017-18	152280	375988	40.50
2018-19	169699	421103	40.30
2019-20	194473	466926	41.65
2020-21*	207415	501449	41.36
2021-22 (up to December 21)	161017	302490	53.23

Source: STPI-Bengaluru.

viii) Karnataka Digital-Economy Mission

'Karnataka Digital-Economy Mission' a Section 8 company is a new initiative to be established to promote Digital Industry growth and attract investments by providing hand-holding services and suggesting policy initiatives to be taken up by the State Government for facilitating investments. The body will act like a bridge between Industry and Government to build global linkages for promoting tech industry and further enhancing the brand equity of the State. The body will help in increasing the contribution of digital economy in the State to 30% of the GSDP, generating additional employment of around 30 Lakhs and target at achieving about US$ 150 billion of IT exports in the next 5 years.

'Karnataka Digital Economy Mission' will be set up on a Public-Private Partnership model on lines similar as 'Invest India' (a not-for-profit venture under DPIIT) of Govt. of India. Contribution from the Industry for the proposed Section 8 Company will be from Industry associations, viz., ASSOCHAM,NASSCOM, IESA and Vision Group on Startups. Focus of the Mission will be on the following five verticals: (a) Software Products and Services including Global Capability Centres [GCCs]. (b) Innovation and Startups. (c) Electronics Systems Design and Manufacturing. (d) Beyond Bengaluru. (e) Talent Accelerator.

The objectives of setting up Karnataka Digital Economy Mission are as follows:

a. Promote and support Digital (IT, ESDM, Innovation and Allied) Industry growth and Investments in Karnataka;

b. Supplement and support the activities of Department of Electronics, IT, Bt and S&T for Investment Promotion in the State's Technology Industry;

c. Provide handholding services and assist in preparation of Technology-sector specific

investment reports for respective stakeholders;

d. Sponsor and support specific studies which would target identified Technology opportunities relevant for investment in Karnataka;

e. Follow up and provide feedback to the Department of Electronics, IT, Bt and S&T and other relevant Departments regarding policy initiatives relevant for facilitating further investments in Karnataka;

f. Build global linkages and assist the Department of Electronics, IT, Bt and S&T in its promotional efforts globally with structured programs, business meetings and sectoral information;

g. Act like Bridge between Industry and the Government for promoting the technology Industry in Karnataka; and

h. Build the brand equity of the State and enhance its leadership position across all key segments.

The key aspirational goals of Karnataka Digital Economy Mission to be achieved in the next 5 years are as follows.

- ❏ Enable the Digital Economy in the State to contribute 30% of the overall Gross State Domestic Product (GSDP) in Karnataka;
- ❏ Target reaching USD 150 bn in the State's IT exports;
- ❏ Gnerate an additional employment of around 30 lakhs through the State's IT and Electronics Industry;
- ❏ Attract at least 100 mid-sized Global Capability Centres (GCCs) to establish their operations in Karnataka in locations other than Bengaluru;
- ❏ Encourage Industry to expand operations 'Beyond Bengaluru' and target to have at least 15% of the companies have their presence in key emerging cities and districts across the State;
- ❏ Leverage the emerging remote working culture and support its expansion to locations beyond Bengaluru;
- ❏ Increase Startups' contribution to about 5% of the State's GDP;
- ❏ Encourage 25,000 Startups to employ about 10 lakh professionals;
- ❏ Support close to 40 Unicorns and 50 Soonicorns;
- ❏ Target having 150 VC investors with corpus of US$ 100 billion;
- ❏ To generate employment of 1,00,000 direct workforce in 5 years with an investment of INR 7,000 crores, through the 100 mid-sized GCCs attracted; and,
- ❏ Encourage MNCs, GCCs and Startups to contribute to innovation-driven products and services while laying emphasis on social development.

ix) Development of district as Export Hub

Karnataka has identified products for developing districts as Export Hub. The products identified for 30 districts are given below in **Table 3.10.** This includes 3 districts (Bangalore Urban, Dakshina Kannada and Ballari) for which the products were identified by Government of India.

Table 3.10: Products identified for developing districts as Export Hub in Karnataka		
	Name of the district	**Item identified**
1.	Ballari	Granite, Jeans Pant, Apparels Jute products, Engineering products, Electrical Machinery and Transport Equipment, Engineering/ Iron-ore based value added products, Pomegranate, Chilies
2.	Belagavi	Hulled Wheat, Organic Jaggery, Sugar, Raisins Iron castings, Industrial castings, hydraulic pressure equipment, Pump and Valve Accessories, Engineering components, Aerospace components), Kolhapuri Chapels (GI Tag), Turmeric, Milk based value added products.
3.	Bidar	Bidariware (GI Tag), Bulk Drugs, Green Gram and Soya Bean products, Hand paper, Craft paper. Ginger, Papaya, Mango (Dasheri and Kesar) Kamalapur banana (GI Tag), Ginger, Tourism.
4.	Chikkaballapur	Bangalore Rose Onion, Grapes (Bangalore blue) (GI Tag), Mango (Alphanso, Mallika, Raspuri and Baneshan), Vegetables including gherkin & tomato.
5.	Chikkamagaluru	Coffee (GI Tag), Speciality coffee (valve added item) (Arabica and Robusta), Pepper (Panniyur), Gherkins, Honey, Cucurbit seeds, Tourism.
6.	Chitradurga	Pomegranate, Ground Nut, Minor Millets and Onions, Molakalmur silk saree (GI Tag), Maize Grit, Tourism
7.	Dakshina Kannada	Cashew (Ullal 1,2,3) and Spices, Marine products, Jack Fruit, Plastic components, Light Engineering: Auto components, Electrical, Plastic machinery etc., Tourism Value added plastic items: Woven Sacks/FIBC, optical items, Moulded& extracted items, packaging items, plastic components.
8.	Dharawad	Mango(Alphanso), Bhendi, Green Gram, Black Green Gram, Industrial valves, Auto components, Gherkins, Mango Pulp, DharwadPedha (GI Tag), Navalgund Carpets(GI tag),Karnataka Kasuti (GI Tag), Sweet corn Baby Corn, Fruits and Vegetables, Processed fruit and Vegetable products.
9.	Gadag	Ground Nuts, Chilies, Pulses, Green Gram, Maize
10.	Hassan	Rice, Coffee (GI Tag), Speciality coffee (value added item), Spices, Potato and Value-added products of potato, Ginger, Coir, Activated carbon, Pepper, Cucurbit seeds, Tourism
11.	Kalaburgi	Turdal (GI Tag) and Pulses, Kamalapur red Banana, Fullers earth (Bentonite clay), Cotton and Value-added products.
12.	Kodagu	Coffee (GI Tag), Speciality coffee (valve added item), Coorg Madrin (GI Tag), Spices, Anthuriums and Orchids, Cardamom (GI Tag), Pepper, Honey, Tourism

Table 3.10: Products identified for developing districts as Export Hub in Karnataka		
	Name of the district	**Item identified**
13.	Kolar	Mango (Thothapuri, Mllika, Baneshan and Alphanso), Tomato, Color Capsicums, Millet Ragi, Rose Onion, Vegetables, Mango pulp, Processed Pulses/ Spices/ Cereals, Engineering: Precision components, Aerospace and defense components, Automobile phones, Apparels.
14.	Mysuru	Banana, Sweet Corn and Spices, Betel Vine, Silk, Silk textiles, Engineering products (Machine tools, Auto components, Medical equipment, PCBs, ESDM cluster products, Nanjangud Banana (GI Tag), Mysorepak (sweet), Betal leaves (GI Tag), Eeeranagere brinjal, Ganjifa art (GI Tag), Handicrafts, Wood Inlay works (GI Tag), Sandal soap, Agarbathi, Jasmine/ Essential oils and perfumes, Processed food, Jaggery, Tourism.
15.	Raichur	Rice, Pomegranate, FIG, Cotton, Pharma products, Chillies
16.	Ramanagara	Channapattana Toys (GI Tag), Wood based craft products & wooden kitchen items, Coir products, Auto components, Automobiles, Furniture, FMCG, Granite, Herbal Ayurvedic products. Mango (Alphanso), Ragi, Babycorn, Millets, Vegetable & flower seeds.
17.	Tumakuru	Coconut, Pomegranate, Tamarind and Minor Millets, Machine tools, Automobile components , Coir Board, Coir Pith, Geotextiles, Tuffed coir, Rubberised Coir, Activated carbon, Gherkin, tamarind products, Mango and Papaya pulp, Coconut Desiccated powder, Areca leaf products.
18.	Udupi	Marine products, Cashew, Rice (kagga), MatugullaBrinjal (GI Tag), UdupiSaree (GI Tag), Udupi jasmine (GI Tag),
19.	Uttara Kannada	KonanaKatte Liquid Jaggery (sugarcane), Cashew and Marine products, Spices, jack fruit, Turmeric, Arecanut and its value-added products.
20.	Vijayapura	Pomegranate, Kagzi Lime and Grapes, Raisins, Tourism.
21.	Bagalkote	Pomegranate, Grapes (Thompson seedless, Red Globe, Sharad Seeddless), Sapota and Turmeric, Raisins, Organic Jaggery, Sugar and Maize. Tourism (Badami, Aihole,Pattadakal, Koodalasangama)
22.	Bengaluru Rural	Bangalore Blue Grapes, Wine, Guava Pulp, Vegetables and Flowers. Readymade garments, Engineering/ Aerospace / Automobiles, processed foods, Silk, Plant/Bio extracts. Pharmaceutical products

Table 3.10: Products identified for developing districts as Export Hub in Karnataka		
	Name of the district	**Item identified**
23.	Bengaluru Urban	Processed Foods, Vegetables and Flowers. Engineering Machine tools/ Automobile& Auto components/ Aerospace components/ Precision components, Earth moving machinery, Defense manufacturing, Electrical machinery, etc., ESDM products. Pharma & Biotech, Electrical machinery, Plant extracts, FIBC bags & packaging products, Readymade garments/ Textiles. Services-Hospital/Health/Wellness/Educational, Engineering Services, Global Research & Development, Hub for manufacturing/Global Development Centre, IT/ITES.
24.	Chamarajanagar	Turmeric, Banana, Ginger, Honey, Mango (Alphanso), Silk textiles, Black Granite.
25.	Davanagere	Rice, Maize, Vegetable, Minor Millets (Ragi, Navane) and value-added products, Arecanut value added products/plates, sugar, Marigold flower extract, Gherkin, Foundry products, Fuel Brickets (Maize biomass based)
26.	Haveri	Byadgi chillies, Chilies, Mango (Alphanso) Maize value added products.
27.	Koppal	Rice, Mango (Kesar and Alphanso), Guava Pink, Papaya, Pomegranate.
28.	Mandya	Banana, Organic/ chemical free Jaggery, Sugar, Ragi and Minor Millets, Readymade garments, Vegetables and processed foods, Honey, Kodiyala Silk Sarees, Jack Fruit, Papaya, Mango, Coconut.
29.	Yadagiri	Bajra, Rice, Tur, Cotton.
30.	Shivamogga	Ginger, Banana, Arecanut value added products, Spices (Pepper and Cardamom), Pineapple, Areca leaf cup/plate, Auto components/castings, Readymade garments. Maize and value-added products, Handicraft items.
Source: VTPC, Department of Commerce and Industries, Government of Karnataka, Bengaluru.		

3.3. Way forward

For the current FY 2021-22 (up to November 2021), the highlights of Karnataka's performance in attraction of private investments and exports of goods and services are as follow.

i. Karnataka's performance in attracting both domestic and foreign direct investment even during the Covid-19 pandemic years is noteworthy. For instance, total domestic investment approvals in 2020-21 and 2021-22 is 602 projects, investment of Rs.78264.24 crore and potential employment generation of 1,89,351 jobs.

ii. Karnataka stands first among the states in India in attracting FDI (US$13954 million).

iii. The biotechnology sector has experienced positive impacts on attracting FDI and increasing exports during the pandemic years: The FDI in Biotech increased to US$1.34 billion in 2020-21 in the area of Vaccines, testing, and new anti-infectives.

iv. Karnataka economy has higher degree of openness to international capital (6%) than at all India level (0.99%) and higher degree of openness to export trade (25%) than at all India level (7%).

v. Karnataka is a significant contributor to national exports as it contributes to India's total exports by 19% and for export of software and services by 38%. Bengaluru Urban, Dakshina Kannada and Bellary districts of Karnataka are among the 30 top exporting districts of India.

vi. District Level Export Promotion Committee (DLEPC) have been constituted under the Chairmanship of Deputy Commissioner's of the districts under the 'District as Export Hub' initiative of Government of India. Karnataka has identified potential export products in all 30 districts.

vii. Major exports from Karnataka comprise electronics and Computer Software (contributes (about 81% of Karnataka's total exports). During the pandemic years, value of exports from biotechnology sector increased by 6 percent and reached US$2.9 billion in revenue in FY2020-21 due increased exports of Bio-Pharmaceuticals, drug research and delivery services along with BioIT and health services.

viii. Karnataka's bio-economy aims to capture 50% share of the national bio-economy target of US$100 billion, especially by capturing new growth opportunities opened up during Covid-19 pandemic (Vaccines and Testing).

ix. Sector-specific promotional policy for startups and policy measures under ICT, Electronics and BioEconomy policies are promotive of startups and leading Karnataka as one of the top three locations for startups in India,

However, further actions may be needed to maximize the State's economic growth (or growth of GSDP) including improving ease-of-doing easing-doing-business and easey of living to enhance and strengthen competitiveness in attraction of both domestic and foreign investments, and higher exports. Key areas of desired policy actions are as follows.

Capitalise Bangalore Advantage

- ❏ As a R&D hub by developing Plug & Play Infrastructure Parks around Bangalore.
- ❏ Development of Integrated Industrial Townships around Bangalore for helping investors in establishment of industrial units in satellite industrial ecosystem.

Global Connect and Domestic Synergy

- ❏ State government can connect with investors over global platforms (Global Investor Meet, Defence Expo) to bring in investments to the state. Showcasing the Advantages for Karnataka as a destination of domestic and foreign investment through global investors meet is important. The last Global Investors Meet was organized by Government of Karnataka in the year 2016. It's success in attracting both domestic and foreign investment into the State was a model for other states in India. Next Global Investors Meet was planned for the year 2020 but was postponed due COVID-19 pandemic. It is expected to be held in November 2022 but its official announcement

is awaited.

- ❏ Establish country desks in countries which have higher investment in Karnataka or India to promote further industrial investment from these economies.

Promote and Facilitate Ease of Doing Business

- ❏ Monitoring and tracking of investment clearances/ licenses by developing a comprehensive dashboard to monitor the timelines for various departments to ensure timely delivery of approvals/ NOCs by respective departments/ authorities.
- ❏ Single Window System for alll State level licences/ NOCs by KUM and introduction of Auto-Renewal of Licenses required for both manufacturing and service sectors.
- ❏ Enhance the scope of Affidavit Based Clearance (ABC) mechanism to provide more number of services through deemed route.
- ❏ Minimise regulatory compliance burden through comprehensive GPR, for simplified application forms, reduced timelines and normalise application fee.

Participation in Global Value Chain through Vendor Development

- ❏ Identify and collaborate in global value chains (GVCs) to bring sustainable investment.
- ❏ Vendor Development Program to provide supportive framework to large, mega and ultra-mega industries to reduce cost of production to make the product competitive.
- ❏ Improving costs of doing business through minimising regulatory compliance burdens.
- ❏ Dedicated sectoral relationship managers to support investors in providing sectoral insights such as technology, quality certifications and compliances.

Export promotion

- ❏ Strong promotion of potential exports by products at district level can be a new strategy for reducing inter-district disparities in economic growth.
- ❏ The present Export Strategy of Karnataka was formulated before Covid-19 pandemic and applicable over 5 year period including the pandemic periods. It needs redesigning to be dynamic, strategic and responsive for the global, national and state level changes in export trade as well as to offset the negative effects of Covid-19 pandemic.
- ❏ Implementation of Karnataka Digital Industry Mission to further boost investments and exports in the digital industries in Karnataka.

On the whole, Karnataka's policies and programmes for attraction of private Indian and Foreign investments are based on complementarity between (a) Public (Union, State and Local Government) investments and private investments and (b) total (public and private) investments and exports. Karnataka's performance in attracting private and foreign investments and increasing exports in both traditional and modern sectors are contributory to attainment of higher economic growth (or GSDP) and productive employment generation. This approach leads to a Karnataka model of investment and export which fits for a globalizing open-economy with considerable robustness to withstand and/or to quickly recover from the economic shocks caused by Covid-19 pandemic.