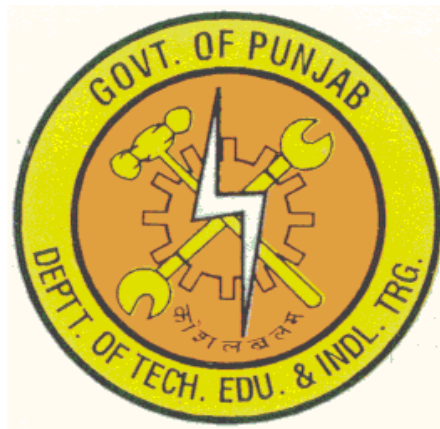


**Background Paper for
Skill Development Policy
for the State Punjab
(Draft)
May 2014**



(Only for discussion)

**Department of Technical Education
& Industrial Training, Punjab,**
Takniki Sikhia Bhawan, Plot No.1-A, Sector-36A, Chandigarh

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Chapter 1

Back Ground

1.1 Context for the policy

Enhancing Punjab's Skill Development capabilities is essential for meeting Punjab's aspirations of becoming a major competitive player in the global knowledge economy, and to improve the livelihood of its people. Failure to productively employ the increasing population can have damaging economic and social implications for the state. Furthermore, there are significant deficiencies in the existing Skill Development system that needs to be addressed.

To clearly articulate the Government of Punjab's objectives with respect to Skill Development in the state and outline the strategies that will be adopted to transform the state into a hub for Skill Development, formulation and notification of a new Skill Development policy for Punjab is a necessary pre-requisite.

The proposed policy has been arrived based on a study of the development context for Punjab and key issues facing the Skill Development ecosystem are summarized below:

1.2 Development context of Punjab

A summary of the development context in Punjab in terms of the strengths, weakness, opportunities and threats for the state has been presented below.

Strengths

- 1) Punjab ranks fairly highly on the HDI parameters.
- 2) Punjab has relatively low levels of the population living below the poverty line.
- 3) The rural-urban monthly per capita expenditure divide is comparatively low in Punjab.
- 4) The state exhibits good nutrition levels for women.

Weaknesses

- 1) The decadal growth of per capita GSDP has slowed down considerably in recent year.
- 2) Aside from an overall slowdown in growth, sectoral growth rates have also retarded, including in the tertiary sector.
- 3) Punjab suffers from low sex ratio which is worrying indicator regarding the status of women.
- 4) The levels of institutional deliveries are low in Punjab.
- 5) The state faces challenges in the education sector as well with low GER levels at class IX, Class XI and college levels.

Opportunities

- 1) Punjab has a clear advantage in the farm sector and produces a strong base of supply of inputs for food processing, dairy and other agro-based industries.
- 2) Punjab is a major grower of cotton and has a long established industry of cotton spinning and weaving, strengthening the supply chain for finished products and apparel could see it catering to a rapidly growing domestic and overseas market for these products.

- 3) Opportunities also lie in the areas of petrochemicals, automotive components, bicycles and components, light engineering, machine tools and hand tools, leather, sports goods, pharmaceuticals and IT & Bio-Technology.
- 4) Working age population is set to increase in Punjab which can contribute to the economy if appropriately skilled and educated.

Threats

- 1) Unless policy, budget and program initiatives are undertaken in Punjab to address key issues, it may be overtaken by neighboring states.
- 2) If Skill Development is not provided with adequate support in Punjab. It could lead to falling employment levels.
- 3) Industrial investments and growth will suffer due to lack of skills.
- 4) The developmental agenda of the state will become complex with rising disparities among the people.

Addressing the challenges in Skill Development system can help to address the need to train an increasingly youthful population, particularly if the course offerings can be brought in alignment with requirements of industry. Improving the education system would also help to curb social challenges such as low sex ratio and levels of Institutional deliveries through higher awareness levels. An improved Skill Development System could be the catalyst that Punjab's economy requires to reinstate its position as one the best performing economics in the country.

1.3 Summary of Issues

The following figure provides a graphical representation of the dimensions and the various tiers of Skill Development:

Dimensions	Areas of assessment	Key issues and challenges from assessment
Access	Financial, Information and Physical Access and Access to disadvantaged groups	<ul style="list-style-type: none"> • Lack of industries near 'rural' institutes affecting the overall quality of training offered. This along with lack of hostels and ineffective transport facilities affect the access to students from these areas • Low enrolment of girl students across trades which has also been expressed by the industry • Confusion among students when it comes to choice of trades and courses under different schemes • Low effectiveness of SDI courses in attracting the school dropouts and workers
Quality	Quality of Delivery and Quality of output	<ul style="list-style-type: none"> • <i>Out-dated courses (especially CTS) compared to the current requirements of the industry both in terms of curriculum and the demand of the trade itself</i> • Need for introduction of computer courses and soft skills to keep pace with the technological advancement and the needs of the private sector especially in the services sector

		<ul style="list-style-type: none"> • Perceived lack of books/ learning resources on technical subjects specific to the courses/ trades.
Infrastructure	Seating capacity, physical and academic infrastructure	<ul style="list-style-type: none"> • Overall demand supply imbalance in capacity especially across regions and 'popular/ new trades' • Lack of basic infrastructure facilities and their maintenance like buildings, toilets, drinking water, canteen, hostels, sports facilities, recreational facilities, staff room etc. • Lack of teaching related infrastructure and their maintenance like updated machinery, IT/ computer infrastructure for students, AV aids, well maintained classrooms, etc.
Faculty Development	Strength of Faculty, Faculty Development and Faculty Appraisal/ Recruitment	<ul style="list-style-type: none"> • Shortage of Faculty in Government ITIs as indicated by the vacant posts, coupled by the skills mismatch in the current faculty <p>Overburdening of faculty with other administrative responsibilities related to the running of the ITI that may adversely affected the quality of teaching</p> <p>Need for a systemic intervention (for both government and private institutes) in the current system of faculty development in terms of training programs or industrial orientation offered to the trainers</p>
Industry Orientation	Industry Academia Interaction, Entrepreneurial and industry focus in curriculum, Placement	<ul style="list-style-type: none"> • Lack of effective industry participation at all levels in aspects like curriculum development, management, and shop-floor training • Apparent mismatch in the demands of the industry and the quality of outputs from the IT system reflected in low levels of placements (both quantity and quality of jobs) and low uptake of the ATS. • Weak forward linkage with employment and labour departments <p>Lack of institutional support in the form of mentoring and relevant training related to entrepreneurship</p>
Management and Governance	Institutional Structures, Management and Governance Mechanism and Information System	<ul style="list-style-type: none"> • Slow NCVT affiliation process reducing the responsiveness of the trade offered to the demands of the industry is low coupled by a limited role of SCVT in the current system • Low financial and academic autonomy at the institute level which needs to be relooked, especially for larger ITIs which are being positioned as Centres of Excellence

		<ul style="list-style-type: none">• Need to strengthen the inspection system like Academic Audit to be effective and the use the information collected for assessing the performance of the ITIs. <p>Need to increase government focus/ funding in areas of monitoring and governance</p>
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Chapter 2

Vision, Mission and Policy Objectives

2.1 Vision for Skill Development in Punjab

“To create an equitable and open Skill Development ecosystem in Punjab, focused on excellence of education and training, that is responsive both to the aspirations of the youth of Punjab and needs of local, national and global trade and industry.”

2.2 Mission:

- To improve and upgrade quality of Skill Development in the state with greater focus on development and improvement of infrastructure, human resource and requisite knowledge management with latest tools and methodologies.
- To promote research and development in Skill Development in the state and empowering the researchers for decision making to achieve their research targets.
- To improve and ensure easy access to quality Skill Development in the state

2.3 Policy Objectives and Statements:

In line with the proposed vision, the objectives that the ‘Skill Development Policy for Punjab’ should to achieve along with the respective policy statements that capture the key initiatives and interventions that can be undertaken to achieve the same. The policy objectives and statements have been grouped along the six dimensions as discussed above.

Dimension Access: Financial, Information and Physical Access and Access to disadvantaged socio economic groups	
Policy Objectives	<ol style="list-style-type: none">1) The policy aims to create and promote a culture of lifelong learning.2) The policy intends to address the issue of information access by offering mentoring services, career counseling, appointment of certified counselors, conducting career guidance seminars.3) The policy intends to improve financial access to learners from disadvantaged socio-economic groups.4) The policy wishes to address the issue of physical access for trainees/students by introducing information technology enabled training in addition to creation of physical training facilities5) The policy intends to ensure the right for everyone in Punjab to be trained in the competencies of their choice.
Policy Statements	<ol style="list-style-type: none">1) The state shall work towards realizing the principle of multi-entry and multi- exit in the Skill Development for establishment of a culture of lifelong learning in Punjab.2) Enhancing flexibility in the academic process will ensure better learning opportunities, easy inter-institution transferability of students, improve educational quality and excellence and the ability to match students’ needs and aspirations.3) The state shall introduce various steps for lateral movement from school

	<p>education to skill development and training system. Further, the state shall introduce +2 equivalent certificate or pre-engineering course as an alternative to the conventional Std. XI and XII.</p> <p>4) The state shall introduce steps to improve access to information by offering mentoring services, career counseling, appointment of certified counselors, career guidance seminars, etc. In addition, the state shall also take up steps for providing mentoring services at the institutes by recruiting competent student counselor as part of the permanent staff.</p> <p>5) The state shall launch multimedia and web technology based approaches involving creation of content/digital resources to enhance the learning experience both in terms of reach and quality. Clear framework and guidelines for introduction of ICT enabled training shall be created for this purpose. The state shall enable funding of ICT enabled training to cover fixed costs like hardware and software and recurring costs like connectivity, maintenance, utilities and supplies. The state shall also encourage providers of low-cost, accessible technologies through incentives.</p> <p>6) The state shall set up a Punjab Higher Education Finance and Loan Cell (PHEFLC) for provision of scholarships and education loans for deserving candidates. In addition, the state shall also implement a comprehensive talent management system including identification, allocation and disbursement of scholarships and support for low-interest loans to learners. The state shall launch new schemes such as 'earn while you learn' to encourage students to take up technical education.</p> <p>7) The state shall also constitute a Joint Working Group between DoTEIT and school and higher education departments, with representation from PSSDS and PSBTE to take forward the initiatives related to mobility between school and Skill Development.</p> <p>8) The state shall progress towards ensuring the right for everyone in Punjab to be trained in the competencies of their choice</p>
Dimension Quality: Quality of Delivery and Quality of Output	
Policy Objectives	<p>1) The policy proposes to improve quality of delivery in terms of introducing Quality Assurance frameworks and creating other institutional structures to enhance quality of Skill Development.</p> <p>2) The policy proposes to enhance flexibility of academic process for technical courses and improve quality of training in terms of industry relevant curriculum and practical oriented training as well as assessment.</p>
Policy Statements	<p>1) The state shall take steps to improve quality of delivery such as launching a Quality Assurance Framework and Institutional Audits</p> <p>2) The state shall also form Joint Working Group to strengthen Science Education for improving quality of inputs into Skill Development.</p> <p>3) The state shall introduce flexibility of academic process through credit-based system for technical courses to facilitate cross-learning.</p> <p>4) A comprehensive framework that defines competency levels required for different levels of skills shall be created to provide state-wide consistent</p>

	<p>recognition of training/skill outcomes. The state shall enable establishment of skill certifying agencies for assessment of competency to evaluate skills through both formal and informal means.</p> <p>5) The state shall also adopt strategies to prepare an adequate skill base in emerging green skills, in sectors that possess high greening potential.</p> <p>6) The state shall conduct ‘Student/Trainee Engagement Surveys (SES)’ capturing the experience of students and faculty members of the delivery institutions to gauge the student participation in programs and activities and Student/Trainee Destination Surveys to understand the placement of graduates and nature of employment.</p> <p>7) The state shall also conduct ‘Employer/Trainer Satisfaction Surveys’ to ascertain employers’ perception of technical education and its relevance to industry needs.</p> <p>8) Specifically for ITIs, the state shall provide support for up-skilling and improving employability of trainees by promoting the SDI scheme sufficiently in addition to introducing skill bridge courses.</p> <p>9) In continuation with the current ‘CoE’ scheme the state shall strengthen key training institutes by providing appropriate workshop equipment and adequate supply of training materials. The state shall adopt various initiatives to reposition these institutes as ‘Centres of Excellence’ in identified sectors by providing them sufficient academic, administrative, financial and management autonomy. These institutes will act as nodal institutions in the state in emerging technologies relevant to the sector.</p> <p>10) The state shall set up ‘Centers of Excellence’ in emerging technologies to promote high quality research</p> <p>11) The state shall institute a system of performance incentives to encourage faculty and researcher to bring out research outcomes</p> <p>12) The state shall also implement examination reforms as suggested by the Committee on Examination Reforms for bringing in transparency.</p>
Dimension Infrastructure: Seating Capacity, Physical and Teaching Infrastructure.	
Policy Objectives	<ol style="list-style-type: none"> 1) The policy aims to address the gaps between demand and supply in Skill Development in Punjab across various sectors. 2) The policy shall aim to ensure creation, revamping and maintenance of appropriate physical and teaching infrastructure (equipment, laboratories and teaching aids) for Skill Development in Punjab 3) The policy shall aim to facilitate adequate private and Government funding support for Skill Development in Punjab
Policy Statements	<ol style="list-style-type: none"> 1) The state shall in close coordination with industry conduct periodic technical/skilled manpower assessment studies for introduction of new institutes as well as new courses. 2) In addition, the state shall constitute a technical manpower skill inventory based on existing capacities and admission trends for various courses. 3) The state shall also consider revisions in the admissions policy and incorporate a biannual admission policy to improve the access to courses while improving the viability of institutions. 4) The state shall publish ‘Institute Population Index’ prioritize and plan for

	<p>capacity additions in underserved regions.</p> <p>5) The state shall assess the current and short-term physical infrastructure needs of the institutes. The state shall compute and publish a composite index named 'Infrastructure Index' to benchmark infrastructure across institutes. The state shall also define and implement a norm for physical access to institutes.</p> <p>6) The state shall prepare infrastructure plans to ensure further strengthening of existing infrastructure.</p> <p>7) The state shall analyze and publish spending on Skill Development which will provide details on the various component-wise spending (which provides details of the percentage spend along components such as Infrastructure, Repairs and Maintenance, Faculty Development, Research, Quality improvement, Accreditation).</p> <p>8) The state shall position Government institutes as benchmarks/mentors for other institutes in the region for excellence in education, research, training and capacity building.</p> <p>9) The state shall create critical skill development fund to promote skill-sets relevant growth of economy and job market requirement (for priority skills/sectors)</p> <p>10) The state shall constitute a Skill Development 'Policy Planning, Implementation and Monitoring Cell (PPIMC)' to carry out extensive studies relating to demand forecast/ capacity assessment and for analyzing and publishing data on manpower needs and occupational forecasts.</p>
Dimension	Faculty Development: Faculty Strength and Faculty Appraisal/ Recruitment
Policy Objectives	<p>1) The policy shall aim to address the shortage of faculty/instructors through innovative strategies and initiatives in the Skill Development.</p> <p>2) The policy shall aim to improve the quality of faculty/instructor development training to encourage and reward faculty/instructors by setting up institutional structures for the faculty/instructor development.</p> <p>3) The policy shall also aim to set aside adequate funding for faculty/instructor development activities.</p>
Policy Statements	<p>1) The state shall conduct an assessment of the region-wise and branch-wise vacancy among faculty including the gender ratio and qualifications of the current faculty at various levels in institutes.</p> <p>2) Based on the assessment the department will carry out faculty/instructor recruitment through rapid recruitment drives and take up strategic initiatives to address faculty/trainer shortage. The state shall initiate the concept of a state-wide faculty bank.</p> <p>3) The state shall also implement a rational merit based transfer policy of faculty encouraging services in rural areas.</p> <p>4) The state shall conduct a State Skill Development Eligibility Test on the lines of NET/SET for recruitment of entry-level qualified Instructional faculty.</p> <p>5) The state shall conduct annual trainings for development of faculty members – new recruits as well as established faculty. The state shall also</p>

	<p>take steps to encourage faculty to upgrade their qualification through technology-enabled distance learning.</p> <p>6) The state shall design and implement an extensive Faculty/Instructor Development Program (FDP/IDP) in collaboration with the respective industry's sector skill council.</p> <p>7) The state shall explore partnerships with employers (public sector and private enterprises) for providing industry representatives to train the faculty.</p> <p>8) The state shall create a separate cadre of administrators to assist in administrative functions like placement, infrastructure management, and Industry interaction, headed by a senior faculty member to assist the Principal in day-to-day work of administrative nature.</p> <p>9) A comprehensive performance appraisal system for faculty, instructors and administrators with incentives for better performance shall be implemented.</p> <p>10) In order to implement the aforementioned steps, the state shall create a Working Group on Faculty within Skill Development 'Policy Planning, Implementation and Monitoring Cell (PPIMC)'.</p> <p>11) The state shall constitute a separate Faculty Recruitment Board within PSTEB for recruitment related activities.</p>
Dimension	Industry Orientation: Industry Academia Interaction, Entrepreneurial and Industry focus in curriculum, Placement
Policy Objectives	<p>1) The policy shall aim to improve linkage with industry through meaningful engagement with industry at all stages of industrial training</p> <p>2) The policy shall aim to expand the self-employment opportunities for graduates passing out of the technical education system through promoting the culture of entrepreneurship.</p> <p>3) The policy aims to promote the culture of research in the state</p>
Policy Statements	<p>1) The state shall set up a State Entrepreneurship and Placement Cell (SEPC) to design and implement the initiatives related to entrepreneurship and placements for institutes that do not possess adequate capacity.</p> <p>2) In order to promote entrepreneurship the state shall initiate a program and strengthen existing Technology Entrepreneurs Parks (TEP) in each district where shared facilities and infrastructure will be created for the use of entrepreneurs, researchers and industries in Punjab.</p> <p>3) The state shall conduct Entrepreneurship Awareness and Development Programs to create awareness about entrepreneurship, support innovation and commercialization of the business idea.</p> <p>4) The state shall set up 'Sector Skills Councils (SSC)' under aegis of the Skill Development 'Policy Planning, Implementation and Monitoring Cell (PPIMC)' with each skill council having a specific mandate. Further, the state shall enable SSCs to provide cluster-based mentoring of ITIs where special modules can be designed and delivered.</p> <p>5) The state shall explore co-branding of courses to engage private companies in various sectors for Skill Development and Vocational Training.</p> <p>6) The state shall strive to to improving linkage with industry across various</p>

	<p>platforms – the state shall set up events such as ‘Workplace Skill Olympiads’ and Business Process Council to enhance the number of industry- institute interactions.</p> <p>7) The state shall take up proactive steps to promote research activities in the state such as formation of a research forum that fosters dialogue between various stakeholders.</p> <p>8) The state shall implement schemes to provide financial support along with access to equipment and facilities at institutes. The state shall organize research funds for Institutes to incentivize research among faculty and students</p>
<p>Dimension Management and Governance: Institutional Structures, Management and Governance Mechanism and Information System</p>	
<p>Policy Objectives</p>	<p>1) The policy shall institute a strong monitoring and evaluation system to enhance the effectiveness of program delivery and impact evaluation of initiatives and schemes.</p> <p>2) The monitoring and decision making shall be supported by a comprehensive management information system.</p> <p>3) The state shall provide the Skill Development institutes with greater financial and administrative autonomy accompanied by strong governance and accountability mechanisms to improve their responsiveness to the needs of the learners and industry.</p>
<p>Policy Statements</p>	<p>1) The state shall create a state level apex body for Vocational training and skill development to coordinate and drive the entire training and skill development.</p> <p>2) The state shall develop a blueprint for private sector involvement in training articulating how private partners can become involved in developing and managing such projects through innovative financing mechanisms including PPP for different aspects of training. The state shall also set up PPP Cell in the Department to facilitate this process.</p> <p>3) The state shall establish a comprehensive monitoring and evaluation (M&E) framework for training and skill development in Punjab. In addition, the state shall carry out periodic impact evaluation studies for key initiatives and make the findings public</p> <p>4) The state shall design and develop a Skill Development Skill Development Management Information System (SD-MIS) in line with the M & E framework for effective evaluation and informed policy planning.</p> <p>5) The state shall work towards a phased handover of government training institutes to autonomous managements to improve the efficiency of the management of these institutes while improving the levels of accountability of these institutes. This will pave way for reforms in funding linked to the performance of the institute.</p> <p>6) The state shall also establish ‘Punjab Skill Development Accreditation Agency’ for defining the standards of training in different domains and accredit institutions.</p> <p>7) The state shall also implement reforms for funding of institutes on the basis of performance of institutes. The state shall also revise the personnel policy to ensure accountability and outcomes.</p>

	8) The state shall form 'Skill Development Gateway of Punjab' to connect all Skill Development Institutes in the state through technology platform. 9) The state shall explore and enable various internal revenue generation activities from the facilities created at the institutes.
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2.4 Key Indicators and Projections

In order to monitor the progress of the various initiatives undertaken as part of the project and measure the impact of the same, we have identified broad indicators with the projected targets over the next two plan periods. These are in addition to intervention specific indicators mentioned under the implementation strategy.

Indicators and targets for Vocational Training

S No.	Indicator	Current level (2011)	Target for FY 2015	Target for FY 2017	Target for FY 2022
1.	Number of students enrolled into industrial training/ skill development courses	63,721	95,582	191,163	318,605
2.	Average number of courses offered in industrial training/ skill development courses	4.8	10	15	20
3.	Number of trainers required for sanctioned capacity industrial training/ skill development courses	4200	4779	9558	15930
4.	% of students passing-out as against students enrolled (for ITI courses)	71%	77%	83%	98%
5.	% of state budget allocated for industrial training/ skill development as a percentage of Education Budget (plan component)	NA	8%	10%	15%
6.	Labour productivity measured as Output per Worker: Tertiary (Rs per annum)	153000	168300	185130	222156
7.	Labour productivity measured as Output per Worker: Secondary (Rs. per annum)	106000	116600	128260	153912

Chapter 3

Detailed Interventions and Implementation Strategy: Access

Based on the issues identified under each of the dimension relevant to Skill Development, the policy objectives and statements, outlined in the previous chapter, have been formulated. This chapter will detail the initiatives and interventions and provide details of institutional structures to carry out the interventions, broad timelines and key monitoring indications that may be tracked. Regarding timelines it has been assumed a period of 0-3 years as short term, 3-5 years as medium term and 5-10 years as long term. All the key activities have been classified accordingly. The indicative budget being provided here is for select activities under this Intervention, especially those that are important from the short and medium term perspective. amounts given here are of an indicative nature and may need further detailing before being considered for financial planning purposes.

3.1 Key Actions:

- 1) *Introduce steps for lateral movement from school education to skill development and training system*
- 2) Form a Joint Working Group between DoTE and School Education department, with representation from PSBTE to take forward the initiatives related to mobility between school and Vocational Training/ Skill Development
- 3) Earmark low skill level professions and offer support services such as placement.
- 4) Introduce +2 equivalent certificate or pre-engineering course as an alternative to the conventional Std. XI and XII
- 5) Introduce steps to improve access to information by offering mentoring services, career counseling, appointment of certified counselors, career guidance seminars, etc.
- 6) Take up steps for providing mentoring services at the institutes during the delivery of Skill Development such as recruitment of a competent student counselor as part of the permanent staff
- 7) Use ICT technologies to enhance the access through Web-based learning and multimedia
- 8) Develop clear framework and guidelines for introduction of ICT enabled vocational training
- 9) Create digital content to address requirement of learning resources
- 10) Create District level skill development and career Counseling services
- 11) Enable funding of ICT enabled training to cover fixed and recurring costs
- 12) Set up Punjab Higher Education Finance and Loan Cell (PHEFLC)
- 13) Implement talent management system for disbursement of scholarships and low-interest loans to learners
- 14) Create a brand for the Institutes to enable access to more funds
- 15) Set up institutional structures such as a Public Relations (PR) Cell and an International Relations Office to promote the Institutes' brand
- 16) Progress towards ensuring the right for everyone in Punjab to be trained in the competencies of their choice

The target for school education is to ensure that every child completes secondary education. This, for a poor family, would mean an investment of 10 years in education, before the child will be eligible for financially supporting the family. The school education system should give good returns for this investment, by developing in the child the requisite skills for a reasonable employment after Class X. The national framework on vocational education will train school children in skill development, which will increase the enrolment in polytechnic colleges in the state. In the proposed program, expected to start shortly, the student will be able to complete four levels till Class 12, and the remaining six levels till post-graduation. This can address the need to integrate education with skill development.

To accommodate the expected increase in the number of learners opting for technical education and to provide increased number of options for existing students the conventional approach towards training delivery must be aided and enabled by the technological interventions through ICT. This will also allow the knowledge resources to be available to every learner as per his / her convenience and just in time. The aim is to use e-learning as an effort multiplier for providing access, quality and equality in the sphere of providing education to every learner in the country. National Policy for ICT in Education is under formulation which highlights the need to integrate ICT as a subject in the curriculum as well as to strengthen the overall teaching learning process. However, technology should not drive education; rather, educational goals and needs, and careful economics, must drive technology use.

3.2 Detailed Interventions

3.2.1 Mobility from school education to Skill Development/Vocational Training system

Following interventions will support such lateral movement from school education to the skill development/training system.

- 1) The state should start offering orientation to various skills in high-schools to ensure that the students are better informed about the choices available to them after school. In addition, short term refresher courses should be designed and provided by the skill development/ training system to allow students to transition from school.
- 2) The state should progressively move vocational education from the current 2 year stream, commencing after Class 10, to a stream that captures 9th Class dropouts and later on it should commence from Class 7, capturing 7th Class dropouts. Secondary school should employ one certified (Advanced) skill teacher as a trainer for the course. The course should train students in basic competencies of the skill.
- 3) The competency framework should map the competency of a student gained through vocational courses during schooling so that he/she can apply for advanced courses directly. At the end of the course, the school should organize for the certifying agency to evaluate students for basic skill competency. All students completing the course will received a Basic competency skill certification.
- 4) Once vocational education is offered in schools, low skill level professions should be earmarked for students who are not able to continue education/training after school. Such students should be supported in placement for such jobs. The decoupling of evaluation and training would allow these students to certify themselves, in later time frame, after they gain substantial work experience.

- 5) To create awareness among current students and school dropouts regarding the benefits of skill training, a public campaign in this regard is essential to improve the branding of vocational/ skill oriented education.

The NKC observes that a crucial problem with vocational training in India is a negative association with manual labour. In order to match the modern requirement of the skills and competitiveness of the workforce a massive re-branding exercise is of the highest priority. Initiatives such as replacing of terms such as 'vocational education' by 'skill development', charting out a career path for trainees and introducing entrepreneurship training modules have been suggested in this context.

- 6) The state shall make equivalence of 12th standard qualification for diploma holders to allow them to be eligible for various programs requiring a 12th standard certificate and also lateral entry into higher level in respective degree program. The experience of Longowal institute can be referred for such an option. Alternatively, pre engineering courses (in place of Std. XI and XII) at engineering colleges to feed into graduate engineering courses. Providing a +2 equivalent certificate for those who wish to pursue other than engineering after completion of such pre-engineering course.

3.2.2 Steps to improve information access

Mentoring during the education process can play a critical role in helping the student pursue the profession he/ she have the aptitude and interest for. In the transition to secondary education after Class 8 and after completion of secondary education (Class X), students are required to choose streams of education (science, commerce and arts) or for technical courses. The state may even consider starting up district-level mentoring and career counseling services which can assist the students with career options at different levels, thus ensuring success with multi-entry and multi exit system. Similarly, the state should take measures to ensure that every student makes an informed choice of his/ her diploma/ graduate course. These Counseling centers should also assess the attitudinal and behavioral aspects of the student and provide training on the same.

- 1) Institutes should ensure that every student has a mentoring session with a senior faculty before completion of any course. Such a session, to take place well before the examinations, should identify areas in which the student has an aptitude and interest.
- 2) To accomplish the above mentoring requirements in government institutions, the department should include a specific component in faculty training to enable them to be effective mentors.
- 3) The department should appoint certified counselors in every district. These can be identified from private practitioners and NGOs. The counselors should provide career guidance to students of institutes in the district. It should be mandatory for students to have at least one interaction session with the counselors.
- 4) Introduce a 24 hour telephone helpline for students after completion of Class 10 and 12 examinations and final year diploma and technical degree.

- 5) A career guidance seminar should be organized in every district of the state before the Skill Development Institutions' admission process. The seminar would involve talks by successful professionals from different fields.
- 6) During the delivery of Skill Development, Institutes should share responsibility for carrying out mentoring:
 - a) They should commission and prepare career guidance literature for various career streams.
 - b) They should recruit a competent student counselor as part of the permanent staff. The counselor should be accessible to all students of the university.
 - c) Every institute should appoint a senior faculty to be a Mentor (Faculty). The Mentor should make available specific hours in a week for mentoring students.
 - d) The faculty should coordinate a formal mentorship program where senior students volunteer to help the new entrants.
- 7) In addition, centralized admission for industrial training, especially SDI/ CoE courses, should be introduced at the earliest. Over a period of time, admissions for all courses should be centralized to improve access and convenience for students. In order to encourage students to take advantages offered through centralized admissions **the counselling/ mentoring program should reach all the target students.**

3.2.3 Framework on ICT enabled Skill Development

Although the potential benefits of widespread application of ICTs are numerous, the key challenge lies in identifying the ways in which technology can be introduced and embedded in society to the best effect. A number of potential barriers to the effectiveness of ICTs related to infrastructure remain including availability of power, provision and maintenance of ICT infrastructure; issues of connectivity, as well as accessibility to the training facilities. Hence, initially, a simple delivery system that minimizes the possibility of technical failures can be taken up and more sophistication can be built upon the success of these initial forays.

The state shall introduce of multimedia and web technology to enhance learning both in terms of reach and quality. This can include multiple approaches like

- 1) Computer based models
 - a) Computer-Assisted Instruction (CAI) that uses the computer as a self-contained teaching machine to present individual lessons;
 - b) Computer-Managed Instruction (CMI) that uses the computer to organize instruction and track student records and progress and/or
 - c) Computer-Mediated Education (CME) consisting of applications that facilitate the delivery of instruction.
- 2) Multimedia based approach consisting of voice and video based instructional tools (in the form of CDs and DVDs) enhanced using interactive technologies like audio conferencing. Such learning technologies can be supported by books, workbooks and case studies. It should be ensured that the e-Learning material are expanded and updated continuously.

The current distance education platform at PTU can be extended to deliver the Skill Development and training and can be later decoupled to form an Open University for Skill Development.

A clear framework and guidelines for introduction of ICT enabled Skill Development/vocational training covering the following aspects needs to be created.

- 1) A clear strategy and approach to ensure the widespread application of ICTs in Punjab including clear targets, timelines, financials allocations and regional plans. Forums and platforms to identify and share insights on successful applications of ICT should be facilitated by the Government. This will help to identify best practices, particularly relating to the approaches adopted relating to developing content that was successful in accessing a large number of beneficiaries.
- 2) Strengthening capabilities of among the beneficiaries to appropriately utilize the technology for their benefit. Ensuring physical access to technology alone is not sufficient. A basic requirement for the use of some technologies such as the internet would be literacy. The Government should ensure that appropriate strategies to address the literacy lags in the state are addressed. ICT could also be taught as a subject in secondary education to provide the necessary skills needed to utilize these technologies. This may imply activities ranging from setting up computer labs to developing ICT curricula.
- 3) Identification of courses and creation of suitable curriculum. Initially courses like communication, safety and quality practices, and other soft skills may be introduced along with modules on theory for technical courses. These courses should be linked to the skill/ vocational framework.

One of the key advantages of ICT based learning tools is that the pace of learning is student dictated. To address this situation, knowledge modules should be designed such that based on the personalized needs of the learner training would need to be delivered to him /her at the right time with the right content to take care of his / her aspirations.

- 4) Creation of content/digital resources (In Punjabi and English) to ensure improvement in quality of education. Training material should be created by involving sectorial skill councils, enterprises and industry associations. In this aspect, the experience and support of the private and non-profit sector should be sought. Standardization & Quality Assurance of e-Content should be ensured.
- 5) Creation of a structure that would support lifelong learning especially informal and workplace learning like mentorship programs for tutorial support in online interactive mode, allowing learners to participate in Employment Fairs at the end of programs.

District level skill development and career counseling services can also be offered through the infrastructure created through this program. Existing employment exchanges can function as career counseling centers and providing information on employment and skill development to prospective trainees.

- 6) Financial Allocations for fixed costs (retrofitting of physical facilities, hardware and networking, software, upgrades and replacement) and variable/ recurring costs (connectivity, including Internet access and telephone time, maintenance and support, utilities and supplies). PPP (Public Private Partnerships) can be opted to

either pilot or fast track the ICT-based training project. Existing open and distance education systems in addition to radio, TV and mobile phones can also be considered for the delivery of the training. Provision of the infrastructure has been discussed in detail below.

- 7) Given that the knowledge and skill set required by an individual will be expanded, the current trainers' needs to keep up with the demand. Hence, capacity building among trainers and administrators including digital/information literacy programs for teacher empowerment is required.
- 8) In parallel the student information database (as part of the SD-MIS) would be developed and maintain the knowledge and capability profile of every individual learner / worker.
- 9) Infrastructure can refer directly to ICT infrastructure, such as the number of radios that are available, as well as to prerequisites for the use of ICT, such as electricity, etc. The department should particularly focus on ensuring provision of the latter which would be an enabler for promoting the use of ICTs.

The department should give encouragement to providers of low-cost, accessible technologies which are locally-owned as these would be more widely applicable to beneficiaries and hence likely to have a wider impact. Choosing simple, locally appropriate solutions that may not require high connectivity or high-level of human capacity is key. Incentives such as tax concessions for providers of ICTs which have social benefits should be provided by the Government to encourage them.

In order to make availability of the information and career guidance for students, apart from the placement cells in the institute, the state may consider repositioning the existing employment exchanges to provide the counseling and information services regarding choices available to the students post school education and post certifications.

The proposed Skill Development Centers (SDCs) can take skill development to the doorstep of rural populations through Common Service Centres (CSCs) set up by Ministry of Telecom and IT; Secondary schools by providing necessary IT support and Rural post offices or Panchayat offices.

3.3 Set up Punjab Higher Education Finance and Loan Cell (PHEFLC) and Talent Management System

While there is a view that the government may discontinue financing higher education institutions, there is a concern that removing the grant-in-aid could adversely impact the economically weaker students. It is suggested that the provision of grants/scholarships should move from a system of 'block' grants to institutions to 'individual' grants to the needy. Such a shift can save substantial resources of the government. However, before phasing out block grants, it should be ensured that 'no student is denied education due to lack of funds'. However, students should be made aware of the actual cost of a course. If they are economically weak they can apply for a fee waiver, or low interest loans.

The state can form a 'Punjab Higher Education Finance and Loan Cell (PHEFLC)' on the lines of National Minorities Development & Finance Corporation (NMDFC within MHRD, GoI) to provide scholarships and educational loans to deserving candidates to pursue

professional trainings especially for disadvantaged sections (including girls). This cell can be placed under the PSBTE or PSSDS for Skill Development Skill Development Courses. Under this arrangement, the banks (possibly a cooperative bank) and Board/Society provide loans to the students. While the bank assumes the administrative responsibility of disbursement and collection, the board funds part of the loan interest to reduce the burden to the students through the 'interest subsidy'. The government should ensure that banks, especially state-owned banks do not reject any education loan unless they have a substantial reason to do so. In case the loan is rejected, the student should have an option to approach the PHEFLC directly, who in turn directs banks to approve the proposal. State governments such as Karnataka and Maharashtra are providing interest subsidy on education loans. Alternatively the PHEFLC can function as an independent authority under Section 25 of the Companies Act, or a Trust under the Societies Act. Such a body will be responsible for:

- 1) Institute schemes such as fellowships and scholarships based on merit-cum-means for students from disadvantaged sections and economically weaker sections within certain limits
- 2) Launch specific scheme for 'female students' to encourage them to undertake technical courses
- 3) Deciding norms under which benefits shall be made available to students
- 4) Offering educational loans at subsidized interest rates for female candidates and other deserving students via having tie-up with Banks
- 5) Cover bank loans to students who have been admitted into top-few institutions to ensure that no deserving student is denied Skill Development Skill Development. The program for student loans can be designed in such a way such that loans are written off where graduates serve for a specified period in certain professions such as engineers/technicians in defense forces or perhaps faculty in a remote engineering college. The writing-off of the loans can be taken up on a case-to-case basis depending on the profession taken up by the students.
- 6) Publish information and profile of students who have availed of such scholarships and fellowships to encourage other students to apply.
- 7) Maintain a database (linked to SD-MIS discussed later) of information pertaining to beneficiaries based on the various categories such as Scheduled Castes, Scheduled Tribes, Minorities, Other Backward Classes, and Others; along with sub-classification in terms of gender, differently-abled / persons with disabilities as well as the disciplines/programs of study, year of enrolment and programs as also the specialization of study, institutions, locations, State-wise and Bank-wise.
- 8) Introduce an insurance scheme for students pursuing higher education, in order to offer financial assistance to them in the event of death of guardians where the nominal premium amount for the insurance policy can be paid either by the student or colleges from 'Students Welfare Fund' to the insurer of the scheme. Such a scheme will help to protect the educational prospects of the students pursuing higher education.
- 9) The program for student loans may be designed such that loans repayments are deferred where graduates serve for a specified period in certain professions such as doctors in govt. hospitals, engineers in defense forces and teachers. The interest component for the period of deferment can be borne by the PHEFLC.

10) In addition, a comprehensive talent management system including identification, allocation and disbursement of scholarships to learners electronically can be developed. This system (developed as part of the SD-MIS) should track the allocation and disbursement of scholarships to various groups like girls/women, physically challenged, rural poor, urban poor etc. Learners could be funded in two parts- (i) Stipend (monthly) to be paid to trainee; (ii) Fee subsidization at the end of the program to be given to the institute after placement.

In addition, innovative financial support mechanisms like 'Earn While you Learn' can be explored as has been proposed in some universities like Azim Premji University to support working professionals opting for further education, etc.

3.4 Transition towards Right to Skill Legislation

Skill Development in the work force will not only benefit the state through increased productivity but will also significantly increase incomes of the people. To enhance incomes of people, it is essential that every desiring person should be trained for at least the basic set of skill competencies for reasonable employment. In a sense, development of basic skill competencies is as important as elementary education. Every citizen should have the right to be trained in the basic competencies of a skill of his/ her choice. Over the medium term, Punjab should enact a legislation declaring basic skill training as a right for all.

Such legislation will also support the practice of life-long learning where the workforce can be continually upgraded throughout their careers promoting learners who have had limited access to training in the past to have a second chance to build on their skills and competencies. In addition, an overall 'skill-culture' and a positive attitude towards jobs based on manual work, in contrast to pure academic culture, would be fostered in the state.

The Act should require government institutions to provide free training in basic skill competencies. Private institutions will also not charge people for basic skill competency training. These institutions will however, be reimbursed a fixed amount per person after the individual is certified for the skill.

The legislation should contain provisions for:

- Norms for access to a skill development institution
- Basic infrastructure required in every institution

The legislation should draw up a list of skill training courses that will be covered in consultation with the sector skill councils.

Where norms for access are not met, government should encourage private investment through incentives such as free land or contribution to capital investments. However, where private players do not show interest, government should build centres for basic skill courses. Skill training for all mandated skills should be conducted at each district.

3.5 Institutional Mechanisms

With respect to input quality, poor mathematics / science education at School level affects the quality of the students entering Skill Development system hence affecting the output quality of Skill Development System. To address this, a Joint Working Group between DoTE and school education departments, with representation PSBTE and PSSDS should be constituted to take forward the initiatives related to mobility between school and Skill Development and to improve the mathematics / science education (at schools).

The state can form a 'State Higher Education Finance and Loan Corporation (SHEFLC)' in case of Skill Development and Vocational Training programs, under PSBTE/PSSDS.

The overall responsibility for undertaking the interventions related to ICT would rest with the DoTE who can be supported by the distance education experience of Punjab Technical University in the initial stages of the program. Initially a working group on access under the Skill Development 'Policy Planning, Implementation and Monitoring Cell (PPIMC)' can be entrusted with the design of the framework for integrating ICT enabled training and skill development with the mainstream training system. Over the medium term, a separate division/ unit can be created to implement and manage the ICT program under the PPIMC cell or as a separate entity.

The branding related initiatives should be taken up by individual institutes under its purview whereas the transition towards the right to skill falls under the aegis of the Department.

3.5.1 Key Activities and Timelines

Activity	Timeline
Steps for lateral movement from school education to skill development and training system	Short Term
Earmark low skill level professions and offer support services such as placement	Short Term
Introduction of a +2 equivalent certificate or pre-engineering course as an alternative to the conventional Std. XI and XII	Short Term
Introduction of steps to improve access to information by offering mentoring services, career counseling, appointment of certified counselors, career guidance seminar	Short Term
Develop clear framework and guidelines for introduction of ICT enabled vocational training	Short Term
Steps for providing mentoring services at the Institutes during the delivery of Skill Development	Medium Term
Recruit a competent student counsel or as part of the permanent staff	Medium Term
Create a District level skill development and career counseling service	Medium Term
Setting up Punjab Higher Education Finance and Loan Corporation (PHEFLC)	Medium Term
Implementation of talent management system for disbursement of scholarships and low interest loans	Medium Term

Creation of a brand for the Institutes to enable access to more funds	Medium Term
Set up institutional structures such as a Public Relations (PR) Cell and an International Relations Office to promote the Institutes's brand	Medium Term
Enact 'Right to Skills' legislation	Long Term
Activity	Indicative Budget (In Lakhs)
Development of framework and guidelines for introduction of ICT enabled technical education	75
Creation of district level skill development and career counseling service (22 districts)	220
Setting up and operational zing Punjab Higher Education Finance and Loan Corporation (PHEFLC) under PTU/ PSBTE	1000
Rebranding and repositioning activities for Technical Education (University/Board)	100
Total	1395

3.5.2 Monitoring Indicators

Outputs	Outcomes
Region wise number of courses offered by ICT enabled delivery	Number of applications received for ICT enabled courses
Amount spent in creating ICT infrastructure	Number of women, backward classes, and minorities enrolled in ICT enabled programs
Number of scholarships disbursed by PHEFLC	
Number of beneficiaries of scholarships	Institute wise trainee and recruiter satisfaction levels as determined by the trainee engagement surveys (related to ICT enabled program delivery)

Chapter 4

Detailed Interventions and Implementation Strategy: Quality

4.1 Key Actions:

- 1) *Improve quality of delivery by introducing various measures such as Quality Assurance Framework and Institutional Audit.*
- 2) *Form a **Punjab Skill Development Quality Assessment Authority (PSDQAA)** to focus on various aspects of quality of technical education*
- 3) *Conduct periodic ‘Student/Trainee Engagement Surveys’, ‘Student/Trainee Destination Surveys’ and ‘Employer Satisfaction Surveys’.*
- 4) *Formation of Joint Working Group to strengthen Science Education for improving quality of inputs into Skill Development.*
- 5) *Introduce flexibility of academic process through credit-based system for technical education courses to facilitate cross-learning.*
- 6) *Develop competency framework for state-wide consistent recognition of training/skill outcomes.*
- 7) *Establish **skill certifying agencies** for assessment of competency*
- 8) *Provision of multi-entry/multi-exit system for students of Skill Development Skill Development*
- 9) *Support up-skilling and improving employability of trainees and students*
- 10) ***Promote the SDI scheme** sufficiently to better utilize the current ITI capacity*
- 11) *Support to current ITIs covered under the CoE scheme should be to become actual ‘Centers of Excellence’, **Centralized admissions for CoEs** should be considered in the medium term.*
- 12) *Create ‘Centers of Excellence’ in emerging technologies*
- 13) *Enabling research and innovation to promote industry linkages.*
- 14) *Knowledge management through improving the IPR regime*
- 15) *Institute a system of performance incentives to encourage faculty and researcher to bring out research outcomes*
- 16) *Implement examination reforms as suggested by the Committee on Examination Reforms for bringing in transparency*

The quality of education received by the student is paramount to all other concerns. An independent assessment of learning achievements is the only way to comprehend the quality of education and may serve as a starting point for future educational policies.

The National Knowledge Commission recommends increase in the flexibility of VET within the mainstream education system through a series of initiatives including retaining aspects of general education (such as numeracy skills, etc.) in VET, modifying entry requirements to permit multiple entry and exit options in the vocational education stream, establishing links between the vocationally education stream and school education as well

as higher education, schemes for lifelong skill up-gradation, etc. Some of the key recommendations are

- 1) Aspects of general education (such as numeracy skills, etc.) should be retained in VET as far as possible, to enable students to return to mainstream education at a later stage.
- 2) Courses in Training Institutes should have distinct tracks for students of different educational attainments.
- 3) Entry requirements for certain trades should reflect the requirement of the trade (as appropriate, for instance the entry requirement of Class X could be relaxed to Class VIII in some cases). Students should be permitted multiple entry and exit options in the vocational education stream.
- 4) Links should be established between the Skill Development/Vocational Training stream and higher education.
- 5) Courses devoted to certain skills training at the primary and secondary level should be introduced in all schools.
- 6) Schemes for lifelong skill up-gradation, through short training programs, should be introduced.
- 7) It is essential that students in Institutes are exposed to various fields of study. Such training will give them new perspectives and will influence the way they perceive issues. For instance, students of medicine should be exposed to courses in humanities; it is useful for students of engineering to take up a short course in project management. However, even with the availability of different courses of study, there would be little cross learning if not facilitated by the structure of programs offered by the Institutes.

4.2 Detailed Interventions

4.2.1 Quality Assurance Framework and Punjab Skill Development Quality Assessment Authority (QAA)

Since the National Board of Accreditation (NBA) which accredits individual program offerings of engineering institutions is itself plagued by issues such as shortage of staff, longer time to process information, inappropriate use of online data systems and slow decision-making, it is best for Punjab to create a quality assurance framework that all institutions can follow to ensure uniform quality of education.

Punjab's Skill Development Quality Assurance Framework could probably comprise of the following:

- 1) Annual program monitoring: The Program would be monitored on metrics decided by the Board/PSSDS
- 2) Internal student surveys to ensure that students are satisfied and act upon the feedback given by students to improve student experience. This can also help improve the range of services offered to students and to maintain an overview of the general student experience.

- a) 'Student/Trainee Engagement Surveys (SES/TES)' (once in a year) capturing the experience of students/trainees, recruiters and faculty/trainers of the delivery of training/ implementation of various schemes should be carried out to gauge the quality of delivery of training. This can serve as an input to rate/ accredit training institutions according to their performance.
- b) Apart from this, 'Students/Trainees Destination Surveys (SDS/TDS)' should also be carried out periodically (once in 3 years) to ascertain the preferences of students post graduating with regard to and serve to answer the question such as 'Where are our graduates now', Nature of employment, relationship between study and work, usefulness of curriculum and provide overall feedback mechanism to improve course content and delivery. In addition, this survey will also indicate the mix of students entering local industry and industry from outside Punjab/ India, higher education and those opting for entrepreneurship. A pre-requisite for such an exercise is an updated alumni directory (which can be maintained in the SD-MIS). Continuous engagement with alumni can also help improve the placement of current students. SDS/ TDS can also serve as an input in planning augmentation of capacities in different courses.

The data from these survey results can be used by the government and institutions to identify aspects of the study experience inside and outside the classroom that can be improved through changes in policies and practices more consistent with good practices in education/ training. This information can also be utilized by prospective students, their parents, college counselors, academic advisers, institutional research officers, employers, and researchers in learning more about how students spend their time at different Institutes and what they gain from their experiences.

- 1) Institutional audit which can be at the core of the institutional quality assurance. The main objective of institutional audit will be to encourage higher education providers to cultivate and maintain a culture of continuous performance improvement and to enable institutions to develop reliable quality assurance performance indicators. The audit would also serve the purpose of providing information to stakeholders and the Department of Technical Education & Industrial Training/Board/PSSDS/Institutes on the strengths and weaknesses of the institutions. The institutional audit can cover the following aspects:
 - a) Institutional governance (Vision, mission, strategic planning)
 - b) Quality of teaching learning processes
 - c) Sufficiency of Training facilities
 - d) Research and publication
 - e) Quality of outputs
 - f) Institutional financial management
- 2) Periodic subject review: There should be a schedule for periodic subject review which ensures that all programs are reviewed on a rolling cycle.
- 3) Multi-stakeholder feedback: This would involve incorporating feedback from faculty members, experts, students, alumni, industry, etc. In this context, 'Employer Satisfaction Surveys (ESS)' can be conducted periodically (once in 2-3 years) which can ascertain preferences of employers in terms of skill sets, competencies and attributes that employers seek in students. This can also reveal information on the level of satisfaction of employers of students/trainees. It can indicate factors such as

relevance of curriculum and preparedness of the graduates to face the industry. Above all, these surveys can lead to better engagement with industry and provide inputs to improve programs and professional orientation of curriculum.

In order to ensure quality in Skill Development Skill Development the Government of Punjab may create Punjab Skill Development Quality Assessment Authority (QAA). This independent authority under Section 25 of the Companies Act, or a Trust under the Societies Act will be responsible for:

- 1) Assessment of learning outcomes in select competencies in various subjects and skill sets
- 2) Enable stakeholders to appreciate the need for assessment of quality and to analyze outcomes
- 3) To make available reports of assessment to Training administrators and to the public for planning, research and analysis.
- 4) Assessment of curriculum in various courses
- 5) Apart from assessing learning outcomes, assessment data also serves to inform and strengthen Skill Development, and to communicate with policy makers, families and other stakeholders.
- 6) Identify and build success stories like Central Scientific Instruments Organization (CSIO) Centre in Chandigarh for replication and expansion.

An example of a similar system is an outstanding illustration of a large scale learning assessment study by **Karnataka Schools Quality Assessment Organization (KSQAO)** that has been carried out under the auspices of a state government and a central government sponsored education scheme. KSQAO could thus be followed as a template to replicate in to a learning assessment study that focuses on measuring learning assessments of students across Punjab.

4.2.2 Enhance flexibility of academic process for technical education courses

To facilitate cross learning, PSBTE/PSSDS should shift from the existing 'plate-meal' approach where courses for each Skill Development program are fixed to a 'cafeteria' approach where students have opportunities to choose from a variety of courses under broad guidelines. A credit based system has the following features:

- 1) Enhanced learning opportunities
- 2) Ability to match students scholastic needs and aspirations
- 3) Inter-institution transferability of students (following the completion of a semester),
- 4) Part-completion of an academic program in the institution of enrolment and part-completion in a specialized institution
- 5) Improvement in educational quality and excellence
- 6) Flexibility for working students to complete the program over an extended period of time
- 7) Standardization and comparability of educational programs across the state.

The credit based system imminently fits into the emerging socio-economic milieu, and could effectively respond to the educational and occupational aspirations of the upcoming generations. Aided by modern communication and information technology, the

credit based system has a high probability to be operationalized efficiently and effectively - elevating students, institutions, and technical education system in the state to newer heights. For instance, Europe has introduced the European Credit Transfer and Accumulation System (ECTS) to facilitate student mobility.

- 1) Credits are allocated to all components of a study program (e.g. modules, courses, placements, dissertation work, etc.) and reflect the quantity of work each component required to achieve and its specific learning outcomes.
- 2) Credits in ECTS can only be obtained after successful completion of the work required and appropriate assessment of the learning outcomes achieved.
- 3) Student workload in ECTS consists of the time required to complete all learning activities like, attending lectures, seminars, independent and private study, preparation of projects and examinations.
- 4) Performance of the student is documented by a local/national grade. The ECTS grading scale ranks the students on a statistical basis.

For greater flexibility in the academic process, the current semester-system will have to be combined with a credit-based system. A large number of institutions around the country already have their undergraduate and postgraduate papers subdivided into units and sub-units. In a generalized manner, the sequence of the credit based system would be as follows

Paper → Unit → Sub unit → credits

The implementation of a semester/credit system calls for several interconnected and coordinated steps that will have to be undertaken including the following

- 1) Flexibility in academic process for higher education may be achieved by combining the current semester system with a credit system. A large number of institutions around the country already have their undergraduate and postgraduate papers subdivided into units and sub-units.
- 2) Re-configuration and revision of curricula (while the quantum of instructional work of faculty members remains about the same, the number of papers or credits could be at least twice as many). Review of curricular contents (study papers, term papers, assignments, workshop assignments, experiments etc.) of certificate Courses.
- 3) Decision on the number of student-faculty contact hours during a semester in different Skill Development programs.
- 4) Determining the amount of work to be completed (or credit points to be earned) by students in Skill Development programs.
- 5) Decision on the time-distribution on class room-work, field-work, laboratory- work, workshop practice and/or other curricular work. Distribution could vary from subject to subject.
- 6) For the sake of clarity of faculty, students, and examiners, all the curricular contents should be specified and sub-divided into units and if need be into sub-units, which are subsequently assigned numerical values and appropriate credits.
- 7) Every department to decide on the number of core-credits (mandatory courses) and elective or optional credits for different levels of its academic programs.
- 8) Decision on the 'total' credits to be earned (or completed) by students undergoing different programs.

- a) Generally, core-credits would be unique to the program, and earning core-credits would be essential for the completion of the program and eventual certification.
 - b) On the other hand, elective-credits are likely to overlap with other programs or disciplines of study (for example, languages, statistics, computer applications, etc.).
- 9) Students enrolled for a particular program or course would be free to opt and earn elective credits prescribed under the program, or under other programs within the department and university or even outside in another recognized institution of higher education.
 - 10) The option for students to pursue dual courses should be explored so that interested and capable students can have an alternate education path.
 - 11) The state needs to deliberate on an acceptable system where all the Institutes transition to a credit system. The students wanting to apply to a new Institute needs to approach the new campus with all the previous academic work completed. The new campus will evaluate the completed academic work against their course listing. Upon being admitted to the new campus the student will receive a credit evaluation showing how transferred courses equate to courses at the new campus.
 - 12) Students should be given flexibility not only to choose courses within the Institute but also to take up exchange programs in national/ international Institutions. Also, since higher education is pursued at a time where students have begun to take on family and personal commitments, the programs should be designed such that the student can take a break from education and re-join later on.
 - 13) It is also suggested that Institutions transform the existing system of having a one-time evaluation at the end of the year. The system of evaluation should be a continuous process with emphasis on testing understanding and application rather than rote learning.
 - 14) Every academic program should mandate completion of minimum number of credits in core subjects. However, students can select elective courses (from a pool of courses) for completing credit requirements of the program.
 - 15) Institutes should transform the system of evaluation from a one-time event to a process of continuous evaluation. Such a process of continuous evaluation is possible only at the Institute. It will be essential to enhance weightage of internal evaluations by Institutes to 30% for 5 years and 50% after that.
 - 16) To enable cross-pollination, Institutions can introduce a ceiling; say one-half or even one-third, of the proportion of faculty members to be hired from within the Institutions.
 - 17) Institutions should establish tie-ups with national/ international Institutions. This could be the responsibility of the International Relations Office, details of which will be given later on.

4.2.3 Competency framework and sectorial competency models

An important pre-requisite for effective lifelong learning paradigm for Vocational training is a comprehensive framework that is agreed upon by both industry and institutes which clearly identifies and defines the competencies - in terms of knowledge, skills and attitude associated with each level in each industry. The Australian Qualification Framework is an example of a framework to define competencies in education and skill training.

The objectives of such a framework would be to

- 1) Provide state wide consistent recognition of education outcomes
- 2) Help develop flexible pathways that assist people to move between education and skill training
- 3) Define competency levels required for different levels of skills

Suggested characteristics of a competency can include breadth, depth and complexity of knowledge and skills and the ability to apply the skills in a work environment. The competency framework would segregate competency levels of skills. For instance, a Certificate 1 can imply basic skills while a Certificate 4 would mean more complex skills. The framework should be consistent with the proposed National Skills Qualifications Framework in order to ensure nation-wide recognition of training and skill acquisition in Punjab.

Essentially the learner will be offered a basket of courses/programs which he/she should qualify to be certified to possess a certain competency at a certain level. There should be sufficient flexibility offered to the learner to qualify in various courses across institutes and over a period of time.

The system, once stabilized, should mandate that no interested student is denied admission. Instead each student can be placed in a stream of choice and in a program according to his/her aptitude. Based on the performance and ability, the student can reach his/her highest qualification. There should be a provision for graceful exit to students who are unable to cope with academic rigor of a program by providing a lower qualification / certificate. For e.g. a student who enters the a mechanical engineering stream after 12th standard may either pass out as a graduate or a diploma holder after a fixed number of years, say six years, according to the credits earned and competency gained. Suppose the student has acquired the competency level of a diploma and is provided an exit, at a later stage, he should be allowed lateral entry into a graduate program.

The industry/ employer should be involved to specify the detailed job profile based on which the competency set should be identified, which in turn will determine the course curriculum. While the current courses/modules can be mapped to these competencies, in addition, as per the requirement, additional courses/modules need to be added which will improve the employability of the students acquiring these competencies. The curriculum and availability of courses/modules against each competency should be reviewed periodically (every 5 years). The syllabus must be prepared jointly by the industry and the educators simultaneously. It should be regularly updated, at least 20% to be changed every year.

4.2.4 Support for up-skilling and improving employability of trainees

The 11 FYP makes a distinction between structural, interventional and last mile employability and correspondingly plans to set up programmes for 24 months, 12 months and 6 months duration. It also makes a case to encourage 'Finishing Schools' to take care of last mile employability. The unorganized sector is not supported by any structural Skill Development and Training system of acquiring or upgrading skills. Training needs in this sector are highly diverse and multi skill-oriented. The SDI scheme has been conceptualized keeping this in mind.

The NSS 61st Round results show that among persons of age 15–29 years, only about 2% are reported to have received formal vocational training and another 8% reported to have received non formal vocational training indicating that very few young persons' actually enter the world of work with any kind of formal vocational training. One reason for this poor performance is the near exclusive reliance upon a few training courses with long duration (2 to 3 years) covering around 100 skills. In China, for example, there exist about 4000 short duration modular courses which provide skills more closely tailored to employment requirement.¹

There is still a long way to go to implement the SDI scheme in spirit. The key actions to be taken up in this regard are

- Creating a vibrant ecosystem of Vocational Training Providers (VTPs) and Assessing Bodies (ABs) in Punjab catering to diverse industries and sectors. Additionally, other institutes with capability to offer training in the SDI courses like the Private Training Providers (PTPs) empanelled with various ministries can also be encouraged to offer SDI courses.
- Rapid introduction of a variety of courses esp. in the services sector by providing incentives to existing and new VTPs. This exercise should be aligned to the skill gaps identified by skill assessment studies described above.
- The state should promote the SDI scheme sufficiently to better utilize the current ITI capacity by introducing two shifts or more. SDI courses can be conducted in the second shift. SDI courses should be extended to all students/ learners in the state by improving the physical and information aspects, especially diploma students.
- Centralized admission for SDI courses should be introduced at the earliest so that students from across Punjab can access the variety of courses that the scheme can offer.

With the imminent establishment a National Skills Qualifications Framework, which establishes equivalence and provides for horizontal mobility between various SD/VET, Technical and Academic streams at more than one career points, the state should be prepared to provide the students necessary support in the form of following initiatives

- To facilitate trainees for appearing for Class X or XII Board exams, state should provide coaching and mentoring to trainees.
- Currently, diploma holders can opt for a bridge program that allows them to move into degree courses. A similar facility should be available for ITI students to shift into diploma courses. A student friendly program should be developed for this transition and students should be encouraged to pursue diploma courses and further enhance their skills. This will require the introduction of an equivalence

¹http://planningcommission.nic.in/plans/planrel/fiveyr/11th/11_v1/11v1_ch5.pdf

mechanism of SDI/CoE courses to CTS courses to facilitate ITI graduates' lateral entry into diploma programs. For example, since each SDI course corresponds to a fixed number of hours of training, for each stream in diploma, the number of hours of training to be completed and associated certificates should be specified. In case of CoE courses, student clearing advanced courses can be given a X standard certificate upon passing the of specific theory exams in addition to the CoE course certificate.

- In order to ensure that the diploma students who wish to pursue engineering are prepared, certain bridge courses in Math, physics, etc. need to be introduced. The students who pass these courses may be awarded diploma with honours and provided preference in lateral entry to engineering courses.
- Refresher courses and new applications should be taught to previously trained ITI trainees to increase their marketability, and keep them up to date on all the new developments in their field.
- In addition to the technical training courses, to improve the employability of industrial training students, each institute should be mandated to provide courses on soft skills, financial skills, IT skills and quality/ safety skills. The state may consider optional 'skill-bridge' courses to address those aspects of vocational education not addressed in the current training to improve the employability of trainees. This includes giving emphasis to last mile employability related soft skills—viz., English language skills, quantitative skills, computer literacy, spreadsheet, word processing, computer graphics, presentation skills, behavioural and interpersonal skills, (professional) ethics/values, etc. Many of these courses can be delivered using ICT enabled delivery approaches.

4.2.5 Enabling research and innovation to promote industry linkages.

Investment in higher education, especially academic research is increasingly being recognised as a potential driver for nation's development through the production of knowledge. Traditionally, countries such as the USA, Japan, Australia and other European nations such as the UK, Germany and Finland have been forerunners in academic research and R&D. However, as per a recent trends, they are now giving way to new front-runners, such as Brazil, Russia, India and China(BRIC nations) that are posing a tough competition to the old world leaders.

The emergence of India as a service-based, knowledge-driven economy has put the spot light on human capital. Higher education is essential to build a workforce capable of underpinning a modern, competitive economy. However, India's performance in research output and investment has been observed by scholars and policy makers alike to be lagging behind other countries, including its BRIC partners. Though funding for education and research has seen an increasing trend over the years, government spending on science research accounts for only 1.2% of GDP. While the number of PhDs

awarded has doubled from 1998 to 2007, data on enrolments still show that the number of students who enter at the doctoral education level is still low (only 0.25 of the total number who enrolled at the graduate level enrol at the PhD level). Further the completion rate of PhD in India is only about 50%

India's research portfolio is grounded in traditional disciplines such as those related to agriculture, and medicine. But its research base is diversifying with emerging strength in pharmaceuticals and the now rapid growth in computer sciences. The highest number of PhDs between 1998 and 2007 has been awarded in the Natural Sciences (25% of the total number of PhDs) followed by Humanities (24%). Other disciplines such as Agriculture (12.9% of the total PhDs), Engineering(8.6%) and Medicine (7.2%), which are important sectors of the economy, show a lower performance in comparison.

According to a study on India's R&D ecosystem², while government/ public enterprises have focused on basic and applied research; the industry focus has been on product and process development mainly in the ICT, Life sciences and knowledge processing industry.

Stakeholders	Basic research	Applied Research	Product Development	Process Development
Government, public enterprises	Medium	Medium	Low	Low
Domestic Companies	Low	Low	Medium	High
Foreign companies	Low	Low	Medium	High
By Sector	Low	Low	Medium	High
ICT	Low	Low	Medium	High
Life Sciences	Low	Low	Medium	High
Engineering and related industries	Low	Low	Medium	Medium
Agriculture, chemicals and Material sciences	Medium	Medium	Medium	Medium
Other R&D and Knowledge processing industry	Low	Low	Medium	High

4.2.6 Knowledge management through improving the IPR regime

The NKC's report and the National Innovation Council (NInC) have identified some key areas where, both at the national and state levels, initiatives need to be carried out to improve the knowledge management and IPR capacity. The areas which can be considered by Punjab are

²Raja M. Mitra;; India's Emergence as a Global R&D Center;; Working Paper: R: 2007

- To modernize IP offices so that they are more accessible and user friendly for the inventor as well as the common man. Initiatives proposed include modernization of infrastructure, computerization, digitization, e-filing, re-engineering of procedures with information technology integration, human resource development, efficiency, transparency of procedures and creation of an operational environment of global standards.
- To create incentive mechanisms to attract and retain quality talent which should encompass fast track career structures within the IP offices to attract and retain competent personnel.
- To intensify IPR training and carry out human resources development for IP offices
- To focus on IPR education among researchers and students and development of IPR cells in major scientific and educational institutions.
- To set up IPR tribunal with special rules of procedure along with judicial training
- To ensure protection of Traditional Knowledge (TK) through Traditional Knowledge Digital Library (TKDL) and promoting incentives for wealth creation from TK.
- To enable IP creation in Small and Medium Enterprises (SMEs) by improving awareness on the strategic aspects of creating, managing, protecting and leveraging IP as a tool to further business opportunities and enable wealth creation.
- To create a global technology acquisition fund, by the central government, for facilitating technology acquisitions, especially for the SMEs
- To increase awareness of the IPR dimensions of new and rapidly changing technologies, especially in ICT, biotechnology, nano-technology, electronics, engineering, bioinformatics etc.
- To create a platform for best practices and innovations information sharing and dissemination.

The NKC also states the need for more effective collaboration between industry, universities and R&D institutions. Systematic reform of the higher education system (including skill based marketable vocational education) in India is essential to develop the required intellectual capital.

4.2.7 Create 'Center of Excellence' in emerging technologies:

Centre of Excellence in Emerging Technologies can be housed in one of the top-performing institutes across the state such as IISER, Thapar University, IIT or any State govt. Engineering and Technology Institute. It can be funded by the State Government. The main objective of setting up this CoE is to provide leadership at a state level or district level to

create innovation related educational programs through research, professional development, business partnerships and may be if required, give inputs on curriculum development. This Centre can enhance national dialogue in the area of science, technology and innovation, and contributing to industrial upgrading and help identify measures to encourage transfer of technology. It can also help in identifying and evaluating new and emerging Science & Technology sectors. These CoEs can also forge international partnership with Universities abroad performing research which can encourage faculty members and students as well.

There must be a conscious effort to attract and retain talented faculty. This is necessary because faculty members and researchers are likely to get opportunities which would be far more rewarding monetarily than in research. It will be difficult to match the salary packages they would be offered in the industry. However, at the minimum faculty and researchers should be provided a reasonable remuneration. Along with this a pleasant environment with good facilities and infrastructure in the university campus would be an added attraction.

To encourage faculty and researchers that bring out good quality research outputs such as publications, books and patents, a system of performance incentives should be instituted. At the same time it is essential to clarify the ownership rights of these research outputs. It is suggested that the producer of the research output should be entitled to a share of its benefits. The block below gives an example of a policy in the US for inventions from government-funded research.

Research should not be looked at in isolation, but rather be integrated into the universities offering. Wherever possible, synergies between research and teaching should be explored. Board/PSSDS should also be pro-active in undertaking research projects for the industry. This could also bring additional income to faculty.

The development of capabilities and exposure to research has to initiate early on for students, so that they seriously consider it as a career option. There should thus be a facility to expose students early to research projects while they pursue graduate education.

- 1) Board/PSSDS/Institutes should allocate at least 10% of funds for research. Funds should be demarcated for pure and applied research. Among applied research funds to be allocated to traditional and emerging areas.
- 2) Board/PSSDS/Institutes should give monetary incentives to faculty and researchers for publications. The incentives should depend not only on the number of publications but also the quality of journals published in.
- 3) The Punjab government should enact a legislation that creates a uniform legal framework for government funded research and gives Board/PSSDS/Institutes ownership and patent rights. In the framework, inventors should also receive a share of the royalty.
- 4) Board/PSSDS/All Institutes should employ a legal expert to support researchers in the legal procedures for filing a patent (IPR).
- 5) Board/PSSDS/Institutes can introduce faculty-designed courses as elective subjects. Faculty can design such courses to align with their areas of research.

- 6) Students of all programs level should be exposed to short research projects. As part of the curriculum, students can be given the option of taking a research project under the guidance of a faculty member in lieu of a course.
- 7) Research proposals particularly for basic sciences are different from general project proposals. It is difficult to accurately predict timelines, costs and outcomes of research projects. Head of Institutes should assess the requirement for additional flexibility. However, any additional flexibility should be accompanied by frequent monitoring.

4.2.8 Reforms in Evaluation

Regarding quality of output the report submitted on examination reforms by the committee under Dr. Salwan, former Vice-Chancellor, PTU can be referred. Some of the key initiatives that can be taken up are

- 1) Developing a broader framework for evaluation including student displays, projects, seminars, collection of information and reports.
- 2) Process of continual evaluation that is comprehensive and part and parcel of daily teaching learning process. The system of internal assessment must be strengthened in this context Assessment based on day-to-day activities rather than examination oriented alone. Evaluation in co-curricular activities such as art, games, health, sports, education, social and personal qualities should be part of the overall evaluation.
- 3) Examinations itself should not be restricted or limited to writing but extended to assessment tool such as observation, discussion, note-taking, recording, collecting opinions of students, to name a few.
- 4) More open-ended questions allowing the students to think and write and express their views on their own
- 5) Transparency in the entire evaluation system - internal as well as external assessment and conduct of examination

4.2.9 Support for ITIs under CoE to become actual Centres of Excellence

As the skill assessment studies are completed and sector skill councils are set up, there should be an effort reposition institutes with potential- in terms of infrastructure, industry relations, faculty etc. as Centres of Excellence for a particular sector. The importance of partnerships with private sectors should be recognized in the creation of these CoEs. The institutes may be the 35 ITIs adopted under the central scheme for up gradation of government ITIs as CoE. This strategy can be adopted near industrial clusters/ SEZs in consultation with the respective sector skill councils. This will enable more meaningful industry participation especially in defining curriculum and student evaluation.

The World Bank report on the progress of the CoE scheme notes the following areas of improvement:

- High instructor vacancies, especially for Advanced Module, need to be addressed
- Need for instructor training programs
- ITI Principal's vacancies and training

- Delay in civil works in some cases
- High drop-out rate in BBT (Broad Based Basic Training) and low pass rate
- Low transition rate from BBT to Advanced Module
- Low awareness among students, parents and industries coupled with low value perception in terms of employability of CoE graduates by industry

To address these issues and in continuation with the current scheme following features should be included/ strengthened in the identified CoE

- Offering a large variety of courses in a particular sector that will allow for the required economies of scale with respect to investment on infrastructure and equipment. This will include basic multi skilling courses, followed by advanced and specialized modular courses
- Improving physical infrastructure facilities like building, equipment etc.,
- Adopting new training technology with close involvement of industry/ skill council.
- Acting as nodal institutions in the state in emerging technologies relevant to the sector.
- Supporting other ITIs in the region by sharing infrastructure and resources. It should be ensured that as we move towards industry/ sector specific institutes, physical access (in terms of hostels and transport) to students from other regions need to be enhanced.
- Providing academic, administrative, financial and management autonomy to the selected ITIs
- Emphasis should be given on skills acquisition and proficiency testing by addressing inadequate instructor training, obsolete training equipment, and lack of instructional materials are some of the factors that combine to reduce the effectiveness of training in meeting the required knowledge and skills objectives. High quality skills training requires appropriate workshop equipment, adequate supply of training materials, and practice by learners.
- To ensure that the students from all regions in Punjab have access to the CoEs, centralized admissions for CoEs should be considered in the medium term. Over a period of time centralized admissions to all courses can be undertaken once a TE&IT MIS has been implemented. The experience from the current initiative to hold common admissions for a cluster of ITIs can be useful in finalizing the norms for district level and later state level common admission process.

In addition to regular revision of curriculum, a practice of keeping a part of the syllabus fixed, say 70%, leaving the rest dynamic (to be decided on course to course) can be attempted.

The Government should provide initially support to all these CoE through central and state funding for capital costs (machinery and equipment) so companies can use this as an extension centres. An example for a similar arrangement is the Warwick Manufacturing Group that has companies like Ferrari as one of their research hubs. Public Private Partnership (PPP) mode may be explored to fund and manage these institutions.

4.3 Institutional Mechanisms

In order to ensure quality in Skill Development the Government of Punjab can create Punjab Skill Development Quality Assessment Authority (QAA). This independent authority can be created under Section 25 of the Companies Act, or a Trust under the Societies Act. It is recommended that Joint Working Group on Strengthening Science Education be set up within PSDQAA. This Group can be set up with participation from Department of School Education, PSTEB, PSSDS and Department of Technical Education & Industrial Training in order to improve the quality of Science Education in schools thereby improving the quality and quantity of science students graduating to higher education. Some of the activities that the Working Group can towards improvement of Science Education include:

- 1) Improving image of science-related careers in schools
- 2) Leveraging RMSA interventions related to science education in schools
- 3) Efforts to draw well-qualified and enthusiastic Science faculty at school level
- 4) Effective teaching-learning mechanisms such as addition of out-of-classroom contexts to improve learning of science in a more practical way. For instance, observing the night sky for constellations, visits to science museums, etc.
- 5) Improving the science curriculum and content at the school level with emphasis on practical work
- 6) Ensuring supply, development, and retention of good science teachers. For instance, incentive should be given to science graduates to become school teachers
- 7) Strategies for linking research, policy formation, classroom practice, and teacher education must be developed

A Working Group under the SD Policy Planning, Implementation and Monitoring Cell (PPIMC) can be created for following activities

- 1) Designing the competency framework and sectorial competency models- in line with the national standards (e.g. National Qualifications Framework) including end of program testing and certification.
- 2) Commissioning of Student/ Trainee and Employer Surveys to determine quality of training delivery quality and employability of students/trainees from Punjab.

The state may enable establishment of separate certifying agencies for assessment of competency- Registered Certifying Agencies (RCA) at district level to evaluate skills through both formal and informal means by setting norms related to availability of assessors and access to necessary infrastructure and fees to be collected by RCAs.

4.3.1 Key Activities and Timelines

Activity	Timeline
Introduction of Quality Assurance Framework	Short Term
Initiation of Institutional Audit	Short Term
Form a Punjab SD Quality Assessment Authority (PVTQAA)	Short Term
Periodic 'Student/Trainee Engagement Surveys', 'Student/Trainee Destination Surveys' and 'Employer Satisfaction Surveys'	Short Term

Formation of Joint Working Group to strengthen Science Education	Short Term
Introduction of credit-based system for technical courses	Short Term
Implement examination reforms as suggested by the Committee on Examination Reforms for bringing in transparency	Short Term
Provision of multi-entry/multi-exit system for students of Skill Development	Medium Term
Support up-skilling and improving employability of trainees and students	Medium Term
Support to current ITIs covered under the CoE scheme to become actual 'Centers of Excellence', centralized admissions for CoEs	
Create 'Centers of Excellence' in emerging technologies	Medium Term
Institute a system of performance incentives to encourage faculty and researcher to bring out research outcomes	Medium Term

4.3.2 Indicative Budget

Activity	Indicative Budget (In Lakhs)
Design and introduction of Quality Assurance Framework	75
Initiation of Institutional Audit (Preparatory work, 50 institutes per tier for one year)	90
Formation of a Punjab SD Quality Assessment Authority (PSDQAA)	50
Periodic 'Student/Trainee Engagement Surveys', 'Student/Trainee Destination Surveys' and 'Employer Satisfaction Surveys' (3 studies)	150
Create 'Centers of Excellence' in emerging technologies (3 in one year)	900
Grants for performance incentives to encourage faculty and researcher to bring out research outcomes (2 tiers)	400
Total	1665

4.3.3 Monitoring Indicators

Outputs	Outcomes
Student admission to sanctioned capacity	Satisfaction of graduates with the education received
Student pass-out and employment rates	Satisfaction of employers with the skills of graduates
Learning outcomes of students	Revision of curriculum
Number of students taking up science	Pre and post course wage differentials of SDI candidates
Internship on-the-job training per student per year	Placement trends for students attending skill bridge courses
Access in terms of number of SDI courses available in each district	Enrolment in industrial training and skill development courses post interventions to improve mobility

Chapter 5

Detailed Interventions and Implementation Strategy: Infrastructure

5.1 Key Actions:

- 1) *Conduct **periodic skilled manpower demand forecast / capacity assessment studies***
- 2) ***Create a revised admissions policy and incorporate a biannual admissions policy** to improve the access to courses while improving the viability of institutions*
- 3) ***Publish ‘Institute Population Index’** to prioritize and plan for capacity additions in underserved regions*
- 4) ***Assess the current and short-term physical infrastructure needs** of institutes*
- 5) ***Compute and publish a composite index ‘Infrastructure Index’***
- 6) ***Prepare infrastructure plans** to ensure strengthening of existing infrastructure*
- 7) ***Define and implement a norm** for physical access to institutes*
- 8) ***Analyse and publish government and private spending** on technical education and industrial training*
- 9) ***Position Government institutes** as benchmarks/mentors for other institutes in the region for excellence in education, research, training and capacity building*
- 10) *Create **critical skill development fund** to promote skill-sets relevant growth of economy and job market requirement (for priority skills/sectors)*
- 11) *Constitute a **SD ‘Policy Planning, Implementation and Monitoring Cell (PPIMC)’** to carry out extensive studies relating to demand assessment and for analyzing and publishing data on manpower needs and occupational forecasts*
- 12) ***Constitute a Working Group on Infrastructure** for the purpose of assessment, planning and setting of criteria and standards related to infrastructure*

A basic problem that has been identified in Eleventh Five Year Plan document with regards to the skill development system in the country is that the system is non-responsive to labour market, due to a demand-supply mismatch on several counts: numbers, quality and skill types. It is also seen that the inflexibilities in the course/curriculum set-up lead to over-supply in some trades and shortages in others. Of the trained candidates, the labour market outcomes as seen from placement/ absorption rates are reportedly very low. Low-paying capacity of learners and reluctance of industries to train workers for fear of losing them to competition has resulted in chronic deficiency in private investment in this area. These issues were also brought out during our interactions with various stakeholders in Punjab. These factors indicate a need to align the creation skilled manpower in the state to the local and national industry demands.

The expansion of technical institutions along with intake capacity also needs to be checked to ensure that whilst the capacity is adequate to meet the GER target of 22% by 2017 (Twelfth Five Year Plan), the capacity additions do not lead to large vacancy woes, a scenario common in the engineering colleges and polytechnics. In addition, regional imbalance, if unaddressed, can have implications on socio-economic development of regions. Well-educated and talented students migrate to well performing districts, many of them take up employment and contribute to economy in those districts.

The issue of inadequate infrastructure was brought out during our interactions with various stakeholders in Punjab. These factors indicate a need to periodically review the growing infrastructure demands as well as check the capacity additions based on the regional imbalances.

5.2 Detailed Interventions

5.2.1 Periodic skilled/ technical manpower assessment studies

Periodic (once in 3 years) assessments of the sector-wise skilled/technical manpower requirements of the state should be the key input in the introduction of new institutes and new courses in existing institutes. Such assessment studies would require close collaboration with industry. There should be an institutionalized mechanism for local enterprises to provide input regarding their manpower demand as part of such assessments. Hitherto neglected sectors such as Rubber Industry, Leather Industry etc. should also be involved in this exercise.

The results from these studies should be mapped against then existing capacities and admission trends for various courses at each tier of technical education and industrial training under each sector. This will constitute the state technical manpower inventory. The gaps between the requirement and the inventories would be the determinant of technical manpower deficit/ surplus for each level in the state and result in specific interventions to address these gaps/surpluses.

An Indicative list of the activities to be taken up in this regard is:-

1. In collaboration with the Department of Industries/ Employment, industry bodies and representative enterprises (public and private) from the identified high-growth sectors in the Punjab, sector specific skilled/technical manpower demand assessment should be conducted.

"List of Twenty High Growth Sectors (as per 11 FYP): 1. Automobile and Auto-components, 2. Banking/Insurance and Finance Services, 3. Building and Construction Industry, 4. Chemicals and Pharmaceuticals, 5. Construction Materials/Building Hardware etc., 6. Educational and Skill Development Services, 7. Electronics Hardware, 8. Food Processing/Cold Chain/Refrigeration, 9. Furniture and Furnishings, 10. Gem and Jewellery, 11. Health Care Services, 12. ITES or BPO, 13. ITS or Software Services/Products, 14. Leather and Leather goods, 15. Media, Entertainment, Broadcasting, Content Creation and Animation, 16. Organised Retail, 17. Real Estate Services, 18. Textiles, Apparel and Garments, 19. Tourism, Hospitality and Travel Trade, 20. Transportation Logistics, Warehousing and Packaging etc.

Accordingly, a state wide survey can be conducted to determine employment potential and detailed technical/skilled manpower forecasts by sector at different levels (corresponding to diploma holders, graduates, etc.). Region wise break-up of demand should also be determined for each sector.

Eventually, a database for occupational forecasts can also be evolved. These inputs can also feed into the state Employment Policy apart from better technical manpower planning.

2. Over a period of time the skilled/technical manpower demand assessments can be extended to national and global labour demand with a focus on select countries like Canada, United Kingdom and Australia to align the sanctioned capacity across trades and courses to country/ global needs. For this purpose collaboration with foreign institutions and certifying bodies can also be explored to ensure the immediate employability of youth from Punjab in these countries. Accordingly, courses and programs which increase overseas mobility of students should be offered.
3. A standard assessment approach and methodology needs to be developed so that the results from various assessments can be combined and compared. Similarly uniform data collection formats should be created such that the data can be uploaded in a TE Management Information System.
4. Based on the current capacity of technical education and industrial training in the state future requirements in institutions in terms of seats in various courses at each level, instructors/faculty, infrastructure can be estimated. This can serve as a justification for any capacity addition.
5. In addition to the NCVT approved courses, the state may also recognize SCVT Program as well which address gaps in specific sectors.

On the basis of the results some of the steps that can be taken up are:

- 1) A list of recommended courses should be prepared for every district/region. All government institutions should offer skill courses based on this list. Special programs for niche areas requiring specific courses/training can also be identified. For e.g. with metro rail services coming up across the country, there may be the need for technical manpower specially qualified in various disciplines relating to Metro technology.
- 2) In case of excess capacity in some Institutes courses changes to the admission policy can be considered including
 - a) Biannual admission calendar to increase points of entry for students. This will need changes in the structuring of programs in terms of credits rather than a fixed set of courses. The validity of the entrance exam rankings, etc. also needs to be updated. Such a step will improve the access to these courses while improving the viability of institutions.
 - b) The current reservation norm for domiciled candidates is designed for a (local) demand surplus scenario. The state had an interest in providing preference to students from within Punjab as the number of seats was insufficient relative to the number of students from Punjab opting for engineering/ diploma. This was the case before private engineering colleges mushroomed in the state creating an excess number of sanctioned seats.

Hence the admission policy needs to be suitably revised to the scenario of high capacity. For e.g. based on historic admission trends the colleges and polytechnics should be categorized according to the local demand. Institutions with lower local demand should be allowed to induct a larger percentage of students from outside Punjab. The categorizations should be revised every 2-3 years.

- 1) To provide an indicator for regional access to education the state should publish 'Institute Population Index' at each level. IPI measures the college per lakh population in the relevant age group for each district and the state. While the IPIs should increase over a period of time the deviation among IPIs of various districts/ regions should also be tracked to measure the regional imbalance.

For instance IPI (SD Institutes) can be calculated to be:

$$\text{IPI} = \frac{\text{Number of Institutions offering SD programs in District 'X'}}{\text{Total Population in 14-23 years of age in District 'X'}} \times 100,000$$

This will help to prioritize and plan capacity addition of institutions in underserved regions to bring the unskilled/ unqualified manpower from these regions with the mainstream workforce.

Based on the assessment studies mentioned above and the IPI a cap may be considered for the maximum number of seats for the institutes in each region to create regional balance both in private and government sector

5.2.2 Infrastructure Assessment and Planning

There is a need for a detailed assessment of the current physical infrastructure at each institute (Government/Private) to understand the current and short term needs. A data collection format of required facilities should be prepared and the information collected during the assessment should be entered and updated in the VT MIS and thereafter lead to calculation and publication of a composite index of the indicators: 'Infrastructure Index'. The performance on the infrastructure index should also contribute to the rating/accreditation of the institute.

The assessment should broadly cover the following aspects of infrastructure both in terms of availability and maintenance

- 1) Physical and Teaching Infrastructure: Classrooms/ Training rooms, Projectors, Audio Visual aids, Seminar Hall,
- 2) Student Facilities- Drinking Water facility, Rest rooms, Hostels, Transport, and Canteen etc.
- 3) Laboratory Infrastructure: Workshops, Machinery and Equipment, Raw Material, Research facilities, Animal House (for pharmacy courses), Studio/Material Museum (for Architecture), Kitchen and Restaurant (in case of Hotel Management and Catering Technology), etc.
- 4) Administrative Infrastructure: Principal/Director Office, Board room, Department Offices, Faculty Rooms, Training and Placement offices etc.
- 5) Sports and Recreational Infrastructure: Playgrounds, auditorium, etc.
- 6) Academic Infrastructure: Library facilities (including books, journals, e-journals), Computer facilities (including software, internet access, printers), etc.

Based on the assessment the respective institutes should prepare an infrastructure plan (updated annually) for strengthening existing infrastructure (short-term, medium-term and long-term). Priorities should be established with sufficient regard to immediate needs and the probable directions of future expansion based on the results of assessment studies and guided by identified norms on infrastructure. Training Centers and institutes should be set up by the government in under-served areas (backward districts, minority concentrated areas, border areas, SC/ST concentrated areas, hilly/difficult areas, and other un-served

areas). New training centers could be set up in conjunction with the schemes of the Department of Women & Child Development, and Department of Minorities/ Social Welfare.

Currently, there is no norm for physical access and one can make inferences only based on whether districts have colleges. The state should define and implement a norm for physical access to institutes. Standards and norms for physical infrastructure should be framed subject to periodic review and evaluation for physical facilities, buildings, libraries, workshop layouts, quality and type of equipment. For e.g. provision of hostel accommodation, particularly for students with a poor economic background, would be critical to enable them to make a choice of college. In terms of hostel facility, all institutes should be mandated to have hostel facility to cover a minimum proportion (say 10%) of seats. At least 50% of hostel accommodation should be for women.

The criteria and standards must allow for maximum efficiency and flexibility by giving due regard to the purpose of the facilities and local conditions. The standards should be designed in collaboration with specialists from industry, teachers and educational architects taking into account the national standards set by DGET, NCVT, NSDC, etc.

For government institutes funds should be allocated to refurbish existing assets allowing for adequate funds for recurrent expenditure for supplies and maintenance and repair of equipment. It should be ensured that, based on accepted norm, a percentage of the capital cost is allocated annually for maintenance and repair.

Private institutes should submit annual reports on compliance to infrastructure standards along with proposals for government aid for infrastructure improvement. Based on the performance and rating of the institute, government can consider partial funding (through loans and/or grants) of capital assets in private institutes. The developmental needs of the institutes will have to be justified by determining impact on infrastructure index of the institute.

Over a period of time, sanctioning of admissions at an institute should be linked to the compliance of the standards at that institute. Similarly, new institutes should satisfy the basic infrastructure requirements including availability of land and construction of buildings, availability of electricity, etc. as per the identified standards and criteria before commencing operations.

Once infrastructure is created, government institutes should be given autonomy in their Administration and financial management as far as infrastructure is concerned. For e.g. maintenance of facilities and equipment, decision on disposal of unserviceable and obsolete equipment, training of faculty on new equipment should be decentralized.

This infrastructure at government institutes (ITIs and polytechnics) should shift the function of repair and maintenance of infrastructure to private management over the next 2–3 years. Infrastructure/ Facilities management in government ITIs may be awarded, centrally, to private enterprises with clear Service Level Agreements (SLAs) to ensure maintenance and repair of equipment. This should be accompanied by an inventory management system (as part of the SD-MIS) to keep records of machinery and equipment at each institute including its replacement and maintenance schedule

5.2.3 Budgetary analysis and Critical Skills Development Fund

An analysis of the budgetary support/spent on Skill Development/Vocational Training should be published annually at a state level which provides details of the percentage spend along components such as Infrastructure, Repairs and Maintenance, Faculty Development, Research, Quality improvement, Accreditation, etc. This publication should provide details of the Plan and Non Plan budgeted expenditure (for central and state schemes) by the Department of Technical Education & Industrial Training in comparison to other states and the center.

Regarding government support to institutes, the presence of government institutes can act as a bench mark for other institutes in the region on excellence in education, research and capacity building. While the government ITIs running CoE scheme do serve this purpose presently, It should be appreciated that such institutes may take time to grow into centers of excellence. In addition, the DoTE can also coordinate with the School Education Department and Higher Education Department to compare the spending on primary, secondary and tertiary education.

A critical skill development fund (CSDF) can be instituted to promote skill-sets relevant growth of economy and job market requirement as determined by surveys mentioned above. Government funding should focus on areas like research funding, research grants, faculty development initiatives, etc. which address the overall quality of technical education in Punjab. Another deficit skill relates to the technical design capability. There is a need for focused Design Education as a part of Skill Development at all levels . This will be key for promotion of entrepreneurship and manufacturing sector in the state.

Given the propensity of service sector to create more jobs in the future, the CSDF can be used to promote courses in the industries in the service sector. These courses can be identified on the basis of the assessment studies mentioned above. Sectors that can be taken up can include Real Estate Management, Construction Management, etc.

Based on the inputs from the stakeholders, the state can consider building an institute at the ITI level, where courses relevant to architecture e.g. Interior design, landscaping design, building maintenance services, etc. should be introduced. The Critical Skills Fund could be a vehicle to initiate courses in these areas.

The fund can be set up in partnership with industry and used for training and up-skilling of existing workers to meet the requisite demands. These funds can also be used towards the following:

- 1) Development of capacity in institutes, corresponding curriculum, faculty development
- 2) Training and placement of job seekers into vacant positions, and requisite up-skill existing workers to meet new business demands
- 3) Fee support for students

5.2.4 Promotion of Green Skills

To prepare an adequate skill base in emerging green skills the state in Punjab, the training and skill development system needs to take necessary actions in sectors like e.g. building and construction, management, energy and hospitality including

- Initiate dialogue with public and private enterprises, industry associations and employee associations to understand evolving practices that embrace sustainability and assess skills/education, relevant to the TE and IT system, required to address the gaps
- Assess availability of jobs-oriented courses in the relevant areas like sustainability and Clean Development Mechanism (CDM) practices
- Build knowledge and capacity by curriculum revision in existing courses by studying global best practices of skills development systems in industry-specific environments. Identify vulnerable segments of the people and re-skilling them

5.3 Institutional Mechanisms

For the above mentioned activities the following institutional structures may be constituted.

5.3.1 SD 'Policy Planning, Implementation and Monitoring Cell (PPIMC)'

The state may consider forming a separate SD 'Policy Planning, Implementation and Monitoring Cell (PPIMC)' to carry extensive studies relating to demand assessment and for analyzing and publishing data on manpower needs and occupational forecasts. A cell should also play an advisory role for periodic policy revision.

The PPIMC can function either within the department or as an independent authority under Section 25 of the Companies Act, or a Trust under the Societies Act with representation of DoTE, PSTEB and PSSDS apart from Departments of Higher Education, Industry, Employment & Planning and DGET representatives in its governance body. The cell should be staffed with professionals/consultants in education and training, statistics and economics.

The proposed authority will be chaired by the Chief secretary with members including bureaucrats, subject experts from research organizations and representatives from nongovernmental organizations.

The findings of the independent evaluation will be reported to the state government and also placed in the public domain. The outcome of the evaluation will be used to improve program design and delivery. The authority will be a registered society with its own rules, regulations, finances, procedures and personnel.

Experts in public administration, management, academics, civil society, among others will be appointed to take up evaluation work, according to sources. The authority will be supported with Rs 10 Crores financial grant by the state government for the discharge of its functions.

The PPIMC can have the following functions

- 1) Commissioning the sector specific skill assessment studies and advising policy revision based on the results of these studies. Till the capacity to carry out the studies is built in the cell, such studies may be carried by external agencies.

These reports and findings should be published in the public website so that the manpower planning by industries is facilitated.

A clear, time-bound plan for various assessments should be published every year.

- 2) The PPIMC can carry out the budgetary analysis and advice the government on the areas where the CSDF can be channelized.
- 3) Separate working groups on access, infrastructure and instructor/faculty development can be formed under the PPIMC to focus on respective dimensions of training/education.
- 4) The PPIMC will provide administrative and procurement support to all the working groups for conducting specific consulting studies that may be required from time to time.

There should be efforts to engage the leadership (administrative and political) to make data based informed decision.

5.3.2 Working Group for Infrastructure

For the purpose of assessment, planning and setting of criteria and standards related to Infrastructure a working group with representatives from works departments like Public Works Department (PWD), institutes and industry bodies may be constituted. For setting the standard and norms with respect to machinery and equipment for each trade relevant skill councils should be consulted. The group can also advise the government on the facilities management of government polytechnics.

Once a detailed assessment of the current physical infrastructure at each institute (Government/Private) is carried out, the group should advise the government in the sanctioning of funds based on the identified norms and priorities.

For other working groups the function and roles are explained in the respective sections.

5.3.3 Key Activities and Timelines

Activity	Timeline
Formation of 'Working Group on Infrastructure'	Short-term
Constitute a SD 'Policy Planning, Implementation and Monitoring Cell (PPIMC)'	Short-term
Linking admission and approval of new institutes to compliance to infrastructure standards at that institute	Medium-term
Revision of admissions policy	Medium-term
Introduction of biannual admissions process	Medium-term
Publish 'Institute Population Index' to prioritize and plan for capacity additions in underserved regions	Medium-term
Periodic assessment studies of the sector-wise skilled/technical manpower requirements	Medium-term
Definition and implementation of a norm for physical access to institutes	Medium-term
Analysis and publication of budgetary spend on Skill Development	Medium-term
Assessment of current infrastructure in ITIs/VTPs.	Medium-term
Design of standards and norms for physical infrastructure	Medium-term
Creation of infrastructure plan (updated annually) for strengthening existing infrastructure	Medium-term

Creation of a Critical Skill Development Fund	Medium-term
Positioning of Government institutes as benchmarks/mentors for other institutes in the region	Medium-term

5.3.4 Indicative Budget

Activity	Indicative Budget (In Lakhs)
Sector wise assessment studies of the skilled/technical manpower requirements (for 10 sectors, one cycle)	200
State-wide survey to determine employment potential (one cycle)	30
State wide assessment of current infrastructure and creation of infrastructure plan(for 2 tiers of Skill Development)	90
Critical skill development fund (CSDF) (for 3 sectors/ skills, one year)	900
Staffing/ Consultancy cost of SD 'Policy Planning, Implementation and Monitoring Cell (PPIMC)' (one year)	50
Total	1270

5.3.5 Monitoring Indicators

Outputs	Outcomes
Number of assessment studies carried out in the last three years	Region-wise skill deficits/ surpluses for each level in each sector
Number of surveys carried out in the last three Years	Number of new institutes opened in the last year
Percentage of ITIs and VTPs (government and private) assessed	Average number of courses in each institute/ sector
Funds allocated for CSDF	District-wise/Region-wise improvement of score of IPI
Percentage of budgetary allocation for ITIs, and other technical institutes	

Chapter 6

Detailed Interventions and Implementation Strategy: Faculty

6.1 Key Actions:

- 1) *Introduce strategic initiatives to **address faculty/trainer shortage***
- 2) ***Conduct an assessment of the region-wise and branch-wise vacancy among faculty or field staff***
- 3) *Implement a **rational merit based transfer policy** of faculty encouraging services in rural areas.*
- 4) ***Initiate** the concept of a state-wide **'faculty bank'***
- 5) *Undertake **rapid recruitment drives and fast track recruitment strategies***
- 6) *Conduct **State Skill Development Eligibility Test** to recruit the entry-level qualified graduates*
- 7) *Introduce **mandatory trainings such as two-week Induction Training Program (ITP) or Pre-Service Training for faculty** to enable the young teachers to better orient and equip themselves for the teaching profession*
- 8) *Launch a **six-month certificate course on technical teacher training** for diploma students during the final year to take up teaching career*
- 9) *Roll-out **Future Faculty Program (FFP)** to identify potential faculty members amongst PhD students from the PTU system*
- 10) *Conduct **upgradation of qualification** through technology-enabled distance learning and identify mentor institutions*
- 11) *Create a **separate cadre of administrators** headed by a senior faculty member to assist the Principal in day-to-day work of administrative nature*
- 12) *Design an **extensive Faculty/Instructor development program (FDP/IDP) in collaboration with the respective industry's sector skill council***
- 13) ***Explore partnerships with employers** (public sector and private enterprises) for providing **industry representatives to train the faculty***
- 14) *Introduce a **comprehensive performance appraisal** system for faculty and administrators*
- 15) *Create a **Working Group on Faculty** within SD 'Policy Planning, Implementation and Monitoring Cell (PPIMC)'*
- 16) *Constitute a separate **Faculty Recruitment Board** within PSTEB*
- 17) *Set up a **'Faculty Development Cell' (FDC)** within the upcoming Institute for Training of Trainers (ITOT) to design and develop Faculty Development Programs*

Since quality of faculty has been reported to be of concern in both the workshops as well as one-to-one interactions, there is a need to put in a place a system of recruiting well-qualified eligible faculty instead of ad-hoc recruitments. The typical qualification requirements of the instructors in government ITIs are CTI/ITI certificates for CTS courses and diploma for CoE courses. As the initiatives related to assessment of skill demand and matching of courses to address skill gaps take shape, the need for faculty will also emerge. Further, capacity upgradation by up-skilling and re-skilling current instructors will be necessary.

A recent World Bank report on Governance of Technical Education (2010) also recommends putting a proper framework for faculty appraisal/faculty development scheme

including training, needs analysis and funding. The report also stresses on the usage of technology for effective delivery of courses and support for research.

6.2 Detailed Interventions

6.2.1 Strategic initiatives to address faculty shortage

Across many institutions, the problem of serious shortage of faculty has been identified in both polytechnics and technical education institutes. Recently, many institutions have undertaken expansion, and have found that faculty recruitment has been quite difficult, with variations across institutes as well as across disciplines. To address the shortage of faculty in institutes with the increase in enrolment and institutes following steps should be taken

- 1) An assessment of the region-wise and branch-wise vacancy among faculty or field staff (for ITIs and VTPs) including the gender ratio and qualifications of the current faculty at various levels in institutes should be conducted. This data should be collected regularly and populated in the SD-MIS. This data can help the department effectively plan for faculty recruitment (full-time and part-time). Over the medium term a state wide faculty 'Bank' can be maintained and all institutes can recruit faculty from this list.

Based on the assessment, faculty recruitment through recruitment drives, identification and grooming of qualified faculty among pass-outs should be carried out.

In addition, the state can also consider implementing a rational merit based transfer policy of faculty encouraging services in rural areas.

- a) To cope with enhanced activities, existing vacancies in all institutes must be filled through rapid recruitment drives. Fast track recruitment strategies along with attractive packages including handsome joining allowance, relocation grant, and job for spouse, assured admission for children, etc. may be adopted. In addition, the attractiveness of the faculty post can be enhanced by allowing faculty members to participate and benefit in the internal revenue generation activities of the institute like providing support to local industries, taking up research, consultancy work, etc.
 - b) For ITIs, initially guest instructors may be recruited by the management/principal of the institute. As far as engineering colleges are concerned, industry persons (for short-term or course-based) may be recruited by the management/Board of Governors of the institute.
 - c) The retirement age of the existing faculty should be immediately raised to 65 years, subject to an internal review by the Board of Governors. The Institutes should be allowed to reemploy retired faculty up to the age of 70 years on terms to be determined by each Board.
- 2) To ensure that the quality of faculty is regulated at the time of recruitment, it should be ensured that the recruitment of faculty is based on theoretical knowledge, technical and pedagogical skills as well as being abreast with new technologies in the workplace.

- a) A State SD Eligibility Test should be conducted to recruit the entry-level qualified along the lines of National Eligibility Test/State Eligibility Test was conducted by University Grants Commission(UGC) for recruitment and appointment of Instructors and Supervisors in institutions.
 - b) For newly recruited fresh faculty members, the state should mandate faculty to attend two week Induction Training Program (ITP) or Pre-Service Training that would enable the young teachers to better orient and equip themselves for the teaching profession. The proposed ITP/Pre-Service training may include Essential Teaching Workshops that would provide educators with an opportunity to improve their teaching abilities. The workshops would focus on basic skills and includes Principles of effective teaching and learning, Learning styles, Communication Skills, Development of interpersonal skills with students, to name a few. The Department already has a 'Training Policy' which entails the guiding principles for training of employees. The training programs can be designed to cater to the objectives stated in the training policy.
 - c) In addition, college wise 'mentors list' may be prepared to provide assistance to the students to address faculty shortages as an interim arrangement.
- 3) In the medium to long term, the following strategies may be adopted to prepare for increased demand forecasted in the future
- a) A six month certificate course on technical teacher training can be offered to diploma students during the final year. This can be an alternative to the entrance test mentioned above.
Such a program should include courses on teachers training, pedagogy, and technical subjects which can be offered to interested students from polytechnics who are interested in applying for faculty posts. The following modules can be considered as part of the program:
 - ☐ Principles of learning
 - ☐ Lesson planning and preparation
 - ☐ Instructional methods and training aids
 - ☐ Teaching and learning resources
 - ☐ Assessing learner performance
 - ☐ Course development
 - ☐ Principles of effective communication
 - ☐ Trainers roles and responsibilities

All those who have enrolled for a diploma program should be provided an option to attend the teacher training program, whether in government aided or private institutions at a nominal fee. This fee may be refunded if they join an institute within Punjab after completion of the course.

The choice of subject should be given to the student with certain conditions e.g. science subjects can only be taught by those with diploma in science stream, etc. The teacher training program should be modular so that the student can complete the course over a period of time during summer and winter vacations, etc. The following factors can be considered for trade selection and capacity estimation

- ☐ Identification of the courses which will have future demand.
 - ☐ Determine the average annual requirement of faculty on account of Superannuation and change of jobs
 - ☐ Determine the requirement of trainers on account of new proposed Schemes
 - ☐ Discussions with institutes and PSBTE on qualitative aspects of the Training required.
- b) For ITIs, potential trainers among pass-outs from the ITI system should be identified and motivated to apply for faculty posts. This will partly solve the unemployment problem and add to the system a large number of people who can then transfer those skills to trainees.

6.2.2 Faculty Development and Trainings

There is a need for targeted Skill Development Programs for Faculty at all levels. The state should allocate a minimum budget in the annual department budget for faculty development. The following steps can be adopted for improving training opportunities for faculty in ITIs and other institutions,

- 1) An extensive faculty development program (FDP/IDP) should be designed, in collaboration with the respective industry's sector skill council. The program should include pre service and in-service training both on the trade as well as teaching methodology. It should also include short-term refresher courses in modern technology and latest fields of knowledge. These faculty development initiatives should be extended to private institutes at nominal fees.
The program should be designed in modules that can be scheduled for 3-4 weeks in a semester, so that flexibility is offered to the faculty members to avail the training.
- 2) As per the Training Policy, Training Needs Analysis (TNA) maybe conducted before the faculty is sent for training and development. This exercise needs to be periodically conducted (once every 2 years) and then finalize training slots for individuals for a pre-determined training cycle.
- 3) Once the trainings are complete, training institutes should evaluate the trainees to gauge the effectiveness of faculty. Faculty should be evaluated using observation, questionnaire, interview, self-diary, etc. (as mentioned in the Training Policy).
- 4) Partnerships with employers (public sector and private enterprises) - for providing industry representatives to train the faculty should be explored. In addition, two-way sabbatical exchange program between industry and institutes should be established. This can be part of a larger scope of industry collaboration which includes advice on curriculum setting, participate in industry sector skills councils, etc.
- 5) One option that can be explored is mandatory regular industry exposure for faculty. For e.g. all the faculty members may be required undergo at least one month training / interaction with the industry every 4 yrs. During this period, the faculty members should complete one project in collaboration with the industry based on the new technology developed in industry in last 4 yrs.
- 6) The rating/ accreditation of an institute should be linked to the participation and performance of the faculty from the institute in the Faculty/ Instructor Development Programs (FDP/ IDP). E.g. minimum training days per annum should be specified for all faculty members.

In addition following initiatives/ incentives can be considered to raise the standard of training/education delivery from a faculty perspective

- 1) During the period of service, in government institutes, faculty should be encouraged to qualify themselves by associating senior posts to higher qualifications for e.g. Faculty at ITIs should be encouraged to upgrade and acquire UG and PG qualifications.
- 2) Institution of award for individual faculty members and technical institutions which can be named as 'Best Technical Instructor Award for Excellence in Vocational Training' as well as 'Best Technical Institute Award'. The schemes of awarding best technical teachers and best technical institution awards would definitely enhance and boost the morale of the faculty/instructors in achieving the overall excellence in their respective fields.
- 3) Faculty should be encouraged to focus on the Project of Students in terms of Guidance on Project Conception, Design, Development, Proto-typing, and Commercial Viability Assessment, Monitoring & Evaluation, etc.
- 4) Teaching aids, especially for vocational training, need to be created such that they highlight the necessary skills/competencies required to master a particular subject at the end of each course for e.g. Guidelines/Workbooks for practical courses at all levels need to be created.
- 5) To improve the exposure of faculty and other decision makers in the system regarding innovative practices, interaction with other states/ countries should be promoted.
- 6) Institutions should actively encourage and support the faculty in taking up consultancy (and testing) work. Teachers should actively liaise with industry to attract projects, particularly those which have elements of industrial problem-solving, student involvement and educative value. There would not be any limit on the quantum of consultancy work a teacher can take up or there remuneration he can earn, so long as this is done with the concurrence of the Competent Authority and without prejudice to the other duties and responsibilities of the teacher or to the interest of the institution and the students. While working out the fees/ charges for carrying out the consultancy project, suitable methods of estimation should be used. These would include either fixing a percentage of the total cost of the project as may be in the case of Architectural projects or Structural Engineering Design projects or estimates worked out on the basis of required man-hour input at different levels and expenditure to be incurred on purchase of materials, use of outside labour, use of outside consultants, computer charges, etc.

The pattern for revenue sharing (After meeting all expenses) can be fixed by institutions taking part in the Scheme. This scheme can provide recognition to the Institute and its staff for rendering a much needed service of a specialized nature in the scientific and technological fields.

A comprehensive performance appraisal system for faculty and administrators, with incentives for better performance, should be implemented. This system should include parameters like attendance, training attended, internal revenue generation, industry interaction, success rate of trainees etc.

The performance appraisal system should provide instructors, faculty and administrators with meaningful appraisals that encourage professional learning and growth. The process should be designed to foster development and identify opportunities for additional support where required.

As part of the system a Performance Appraisal Manual should be created containing the following

- a) Clear responsibility matrix for conducting the appraisal for each level/ grade
- b) Frequency of appraisals and scheduling
- c) Competency statements stating the teaching standards and expectations of performance
- d) Annual Learning plan including mandatory and option programs
- e) Components of appraisal including- classroom observations
- f) Performance ratings and incentives associated with each rating
- g) Report formats and documentation requirements

This information can also reside in the VT MIS. This formal mechanism can be supported by informal initiatives like competition of the trade wise jobs where the instructors of the winning trainees can be issued appreciation letters. In addition the role of the group instructor should be redefined from supervising to mentoring the instructors/units under him/her.

6.3 Institutional Mechanisms

For the purpose of assessment, planning and setting of criteria for recruitment, faculty development and performance appraisal related to faculty a working group under the SD 'Policy Planning, Implementation and Monitoring Cell (PPIMC)' with representatives from DTE, PSBTE, PSSDS, prominent institutes and industry bodies may be constituted. The group can also advise the government on the aspects like internal revenue generation, faculty consultancy, performance management etc. for government ITIs and other technical Institutes

In order to conduct recruitments through the examination process, a separate Faculty Recruitment Board within PSTEB/PSSDS can be constituted which primarily deals with the recruitment process and the examination. Such a Board can be housed either as part of the ITOT, being set up or as a separate institution within PSTEB&IT/PSSDS. The Recruitment Board can also assist with roll out of the two-way sabbatical exchange program. The Recruitment Board will primarily deal with the faculty recruitment process and the examination. The Board can have eminent academicians (probably retired academicians and professors) who can entrusted with this task of conducting examinations and personal interviews before finalizing the candidates to ensure quality faculty are recruited. The Board with support of other teams from PSBTE/PSSDS can also conduct recruitment drives in institutions to recruit teachers and create awareness about faculty recruitment, development opportunities for students interested in taking up a career in teaching.

For up-gradation of faculty development and trainings, a 'Faculty Development Cell' (FDC) can be housed within the upcoming ITOT to design and develop the Faculty

Development Programs such as Induction Program (IP) for Skill Development. The FDC can also guide respective institutions for recruitment of short-term/adjunct faculty, two-way sabbatical exchange program and other initiatives. All pre-service and in-service faculty development programs can be delivered at either ATIs or ITOT or mentor institutions. In case of lack of Infrastructural facilities, support for Video/Web-based trainings and resources can be offered to faculty in their respective institutions itself. In addition, for each major stream of engineering, the recruited faculty should obtain learning material modules from NIMI to upgrade their skills on a regular basis.

6.3.1 Key Activities and Timelines

Activity	Timeline
Region-wise and branch-wise vacancy assessment among faculty/field staff	Short-term
Rapid recruitment drives for faculty recruitment	Short-term
Introduction of fast track recruitment strategies	Short-term
Conduct of State SD Eligibility Test to recruit the entry-level qualified	Short-term
Introduction of mandatory trainings such as ITP/Pre-service Training for faculty	Short-term
Identify mentor institutions for launch of technology-enabled distance learning	Short-term
Create a Working Group on Faculty within SD 'Policy Planning, Implementation and Monitoring Cell (PPIMC)'	Short-term
Constitute a separate Faculty Recruitment Board within PSTEB/PSSDS	Short-term
Design an extensive Faculty/Instructor development program (FDP/IDP) in collaboration with the respective industry's sector skill council	Medium Term
Creation of a separate cadre of administrators	Medium Term
Initiate concept of 'faculty bank'	Medium Term
Launch of a six-month certificate course on technical teacher training can be offered to diploma students during the final year	Medium Term
Launch of technology-enabled distance learning for up-gradation of qualification	Medium Term
Partnerships with employers (public sector and private enterprises) for providing industry representatives to train the faculty	Medium Term
Introduction of a comprehensive performance appraisal system	Medium Term
Setting up of a 'Faculty Development Cell' (FDC) within the upcoming ITOT to design and develop Faculty Development Programs	Long Term

6.3.2 Indicative Budget

Activity	Indicative Budget (in lakhs)
Region-wise and branch-wise vacancy assessment among faculty/field staff (one cycle)	30
Conducting State SD Eligibility Test to recruit the entry-level qualified faculty (for one test, for diploma and engineering)	50

Constitution, staffing of Faculty Recruitment Board for PSTEB/PSSDS (one year)	50
Design of Faculty/Instructor development program (FDP/IDP) in collaboration with the respective industry's sector skill council	100
Implementation of Faculty Development Program for about 1/3rd of Faculty in ITIs/Technical Institutes (one year)	250
Design of a six-month certificate course on technical teacher training for diploma students during the final year	50
Introduction of comprehensive performance appraisal system for faculty and administrators	30
Setting up of a 'Faculty Development Cell' (FDC) within the upcoming ITOT to design and develop Faculty Development Programs	50
TOTAL	660

6.3.3 Monitoring Indicators

Outputs	Outcomes
Number of faculty/Instructors trained per month/year	Number of faculty/instructor vacancies in government and private institutes
Average number of training days per faculty per year	Average performance of instructor in the institute as determined by the performance measurement system for department staff
Average number of days of deputation of faculty/Instructors in industry per year	Institute wise faculty and employer satisfaction(related to training quality)
Number of faculty recruited through the eligibility test, through FFP, etc.	Number of international publications by faculty
Budget allocation on faculty development	Number of faculty vacancies

Chapter 7

Detailed Interventions and Implementation Strategy: Industry Interaction

7.1 Key Actions:

- 1) *Setting up of 'Sector Skills Councils (SSC)' under aegis of the SD 'Policy Planning, Implementation and Monitoring Cell (PPIMC)' with each skill council having a specific mandate*
- 2) *Enable SSCs to provide cluster-based mentoring of ITIs where special modules can be designed and delivered*
- 3) *Explore co-branding of courses to engage private companies in various sectors for Diploma*
- 4) **Set up events** such as 'Workplace Skill Olympiads' and Business Process Council to enhance the number of industry- institute interactions
- 5) **Design and Implement Entrepreneurship Awareness and Development Programs**
- 6) **Create State Entrepreneurship and Placement Cell (SEPC)**
- 7) **Set up Technology Entrepreneurs Parks (TEP) in each district**
- 8) **Implement schemes to provide financial support and access to equipment and facilities at the institutes**
- 9) **Create a research forum that fosters dialogue between various stakeholders**
- 10) **Set-up Research Laboratory and Knowledge Resource Centre either at the upcoming Multi-Disciplinary Academies or at the State Institute of Technical Teachers Training and Research Centre with grants from the State Government**
- 11) **Organize research funds for Institutes**

Most graduates of Skill Development system seek employment in the industry. It is thus imperative that Institutes develop linkages with the industry to receive their feedback on the quality of graduates and to keep abreast of the employment opportunities available.

To facilitate interface with the industry, there should first be a structural interface between the Institute and the industry. Such a structure should specify the roles that industry bodies should play to align the Skill Development system to the employment opportunities available.

The working group on 12 FYP mentions that the quality of employment in organized sector is generally high though the scope of additional employment generation in this sector is rather limited. Significant employment generation is taking place in tertiary sector, particularly, in service industries. Self-employment and small business continue to play a vital role in this regard.

It is critical to recognize that developing and inspiring individuals with an interest in starting ventures has the potential to create significant impacts on markets, economies and communities. It is well known that innovation is a key driver of growth based on knowledge inputs. Innovation is also emerging as one of the key factors in India's economic growth.

In this context, the state should promote self-employment opportunities in addition to strengthening the placement of students to improve the employment scenario and

prevent brain-drain. The state should take steps towards strengthening the forward and backward linkages to finance, marketing and human resource management, to assist those who are or seek to be self-employed. Qualified entrepreneurs with such support will be capable of implementing new technologies and using innovative methods to establish more efficient enterprises and institutions.

The innovative industry-interface structures can also be explored that provide incentives for companies to participate for e.g. district level 'Innovation Labs' can be set-up to bring Industry and Institute together, 'Technology Project Competitions' can be organized for students and faculty (like Business Plan / Case Study Competition) with active industry-institute collaboration. The box items below give example of some successful interfaces between industry and academia.

7.2 Detailed Interventions

Sector Skill Councils and mechanisms for Industry–Institute -Interaction

Since, the industry is a key stakeholder in the technical education and industrial training, there should be a mechanism to facilitate industry participation at every point of the education/ training process. To ensure a meaningful engagement with the industry across the life cycle of Skill Development Vocational Training like curriculum formation, setting of quality standards, assessment of learners, etc. 'Sector Skill Councils (SSC)' can be set up under the aegis of the SD 'Policy Planning, Implementation and Monitoring Cell (PPIMC)'. Each SSC should comprise representatives of companies from a specific industry. For instance, councils for the IT industry, BPO industry, Bio-Technology, Manufacturing industry, Automobile Industry, Mining industry, etc. can be formed. The membership to each SSC should be expanded over the medium term to include all enterprises in the state.

Each industry sector should have an independent skill council with the following mandate

- To assist in the determination of skill demand and their absorption into local industries to ensure that skill courses offered are tuned to meet local employment opportunities.
- To assess the potential of skills required to transition to green economies and understand evolving practices that embrace sustainability which are relevant to Punjab
- To participate in the academic audit/ inspection of training/ education in the institutes offering courses in the respective sectors.
- To contribute in designing the competency models discussed in an advisory capacity while preparing the Qualification Framework.
- To assist in preparation of course curriculum and teaching methodology for various courses and design short-term courses to train graduates. SSCs could also identify and design training courses for working professionals at various levels of an organization.

- To provide internship opportunities to students/trainees. Since courses can be of varied duration, the internship period for each course should be decided by the respective SSCs. The number of interns to be trained by a company could depend on the size of the company. For instance, one may use a thumb rule that a company should train interns numbering 1% of company employees. Companies should pay a stipend to interns during the internship.

Industrial training/internship of the students should be organized in a manner that superfluous training is avoided, but the students should also get opportunities to grow as ambitious entrepreneurs.

- To schedule jobs fair and other forums for interactions between students and industry members. Representatives of the skill councils can be given preference while recruitment during employment 'mela' / job fairs conducted in different regions of Punjab annually.
- SSCs can adopt cluster based mentoring of institutes where special modules are designed and delivered by industry based on the current trends in technology and practice. Over a period of time, it should be ensured that each institution is affiliated to one of the Medium/Large scale industry. The industry partner should be encouraged to open a training centre for the students, where they can undergo training from time to time. The industry can be compensated by giving them some tax relief on such investments.
- In addition a cluster of institutes can open a workshop, partially funded by the SSC, where latest technology machines, software, facilities can be installed, which can be used by all the participating institutes.
- To depute qualified experts as visiting faculty to teach the course where institutes do not have faculty qualified in the subject.
- To participate in the Research Council in universities to decide allocations for public funded research as per the trends in the respective industries.
- In order to engage major private companies in various sectors- 'co-branding' of courses may be explored. The industry player may be involved in curriculum setting, evaluation and placement so that the training is in line with the demands of the industry and the quality of output is certified. Prominent industry players, especially in service sectors like retail, tourism and hospitality, hospital management, security and surveillance, telecom, etc. can be approached for such collaboration.
- Improve the capability of the faculty to resolve industrial / business problems. Therefore, faculty at all levels (Degree/Polytechnic/ITI) should be enabled to build capability around applied research / business problem solving. Accordingly, a mandatory Industry Exposure Programme (1 month per annum per faculty) for faculty at all levels can be delivered through the respective SSC.

- Other ways of improving industry interaction that can be explored include co-location of industry and academic institutions; introducing mandatory industry experience for faculty, etc.

In addition, other innovative industry-interface structures can also be explored that provide incentives for companies to participate for e.g. district level 'Innovation Labs' can be set-up to bring Industry and Institute together, 'Technology Project Competitions' can be organized for students and faculty (like Business Plan/Case Study Competition) with active industry-institute collaboration. The box items below give example of some successful interfaces between industry and academia.

Another form of interaction is in a one-time event conducted to give students exposure to issues faced by the industry.

7.3 Environment to foster innovation and entrepreneurship through Entrepreneurship Awareness and Development Programs

Punjab needs a multi-pronged approach to create infrastructure and an environment to harness the potential and creativity of young entrepreneurs emerging from the Skill Development system. This includes providing funding and necessary support to PSSDS/PSBTE&IT for setting up incubation centers to foster research spirit, creativity and innovation and entrepreneurial and leadership qualities in the students. Institutes can be linked to Incubation centers at polytechnics so that synergies of both engineering and management expertise can be utilized for promoting innovations. The following initiatives/ programs can be undertaken in this context.

- 1) A comprehensive Entrepreneurship Awareness and Development Program (EAP/EDP) should be designed to create awareness about entrepreneurship, supporting innovation, commercialization of the business idea and business incubation.
- 2) The objective of the Entrepreneurship Development Programs (EDP) should be to promote entrepreneurship based on indigenous knowledge by providing necessary guidance in go-to market strategies, commercializing product ideas, managing innovations, access to market, finance and skills, support services and intellectual property protection. The objective of the Entrepreneurship Awareness Programs (EAP) should be to foster the spirit of entrepreneurship among rural youths as well create more job opportunities and new products and services.

As part of these programs, following activities can be taken up

- a) Training focused on both on the technical and managerial aspects of entrepreneurship including information related to loans (credit), process of creating start-ups, patenting, entrepreneurial and networking skills, etc. can be provided.
- b) Seminars and workshops where prominent entrepreneurs from the state share their experience can be organized, at the state level. This will also serve as a platform for the budding entrepreneurs from different regions to interact and forge potential alliance and partnerships. In these forums successful

- entrepreneurs from the state should be recognized through awards and citations.
- c) The courses and curriculum of these programs should be mapped to competency framework/ model discussed under Quality
 - d) An entrepreneurship portal can be set up with a platform for information documentation, interaction and collaboration among entrepreneurs.
 - e) The state should create awareness regarding this program through the media, publicizing success stories.
 - f) Mentorship programs can be designed where the principals/ faculty of the concerned institutes is involved.
 - g) Sector Skill Councils from each sector can work closely with the entrepreneurs to transform innovations into application on the field.
 - h) An Intellectual Property Rights (IPR) support cell can be created to assist innovators/entrepreneurs with the technical and legal aspects of IPR creation.
- 3) In conjunction to the EDP and EAP, Punjab can also initiate a program to set up Technology Entrepreneurs Parks (TEP) in each district which will cater to graduates/ students from the technical education. Once TEP is set up, it can act as nodal agency to offer training and consultancy services for various Governments, public and private sectors. It can also be involved in giving need-based training to researchers, entrepreneurs and industries by using resources in terms of manpower and infrastructure of the university and various national and state institutions. This TEP would also focus on commercializing resources, managing innovations and Intellectual Property, commercialization of technologies, promotion of Industry sponsored research and contract research and to build synergy between industries and academia.
- 4) The State can invite private investors/players and tap their considerable technological, organizational, and marketing capabilities to set up these TEPs. These centers can assist interested start-ups by creating go-to-market strategies, providing necessary guidance, and commercialization of an idea or a product. The main objectives of this program should be
- a) Create shared facilities and infrastructure for the use of entrepreneurs, researchers and industries in the state. Sector specific TEPs according to the industrial presence in the districts will improve viability of the program.
 - b) Coordinate with all stakeholders in the innovation and entrepreneurship ecosystem including all streams of education - polytechnics, engineering and management colleges, to harness synergies of both engineering and management expertise.
 - c) Arrange entrepreneurial training especially in SSI and MSI sectors like food processing, leather products, textiles, restaurants and hotels, tourism and information technology.
- 5) The state should encourage prominent/top-rated institutions in Punjab (Institutions) with adequate infrastructure and facility to create entrepreneurship clubs and incubation centers. This can also lead to an increase in industry academia synergies. These kinds of incubation centers will create and develop a critical awareness of the broad environmental influences (legal, ethical, social, cultural, economic, technological, and international) which create the context within which innovation

and entrepreneurship take place. In addition, it will provide a platform for the students to learn key concepts that underpin innovation and entrepreneurship.

- 6) In addition, entrepreneurship can be introduced in the current syllabi in diploma and graduate programs. This would require revision of curriculum to incorporate module on entrepreneurship: It is important to emphasize on entrepreneurship both at the ITI and diploma level. PSTEB/SCVT can revise curriculum to incorporate a compulsory module on entrepreneurship for all students so that they are equipped to implement new ideas as well as create and manage new ventures.
- 7) The state should also provide financial assistance to students who participate in the abovementioned programs and initiatives.
 - a) Support needs to be provided, in terms of access to capital for self-employment loans, to the passed-out trainees to enable them to set-up to their own small scale industry / servicing units. The principals of ITIs may be consulted for recommendation of loans for "self-employment". Such an initiative can be planned in consultation with the District Industries Centre and the district level industry bodies.
 - b) The candidates can also be provided access to equipment and facilities at the institutes at a nominal rent. In addition, they may be allowed to conduct training as guest faculty at these institutes.
 - c) The state should contribute through funding and necessary support for setting up TEPs. The State can invite private investors/players and tap their considerable technological, organizational, and marketing capabilities to set up TEPs. The State can also seek funding from the National Scheme on 'Support of entrepreneurial and managerial development of small medium enterprises (SME) through incubators' and from National Science and Technology Entrepreneurship Development Board (NSTEDB)
 - d) Entrepreneurship Development should also be encouraged through access to funding through avenues like KVIC and Venture Capital Fund.

7.4 Formation of a research forum and state-of-the-art facility for research and knowledge resources

The state should create a research forum that fosters dialogue on themes related to technical/management education, society and policy for cross-disciplinary interaction and communication between the policy makers, Government functionaries, industry, the media and scientists. This would be an open forum where leading scientists, researchers, entrepreneurs and innovators, policy planners, students and general public from across the State as well as the country may discuss and debate the direction that research is taking in technical education. The breakthrough in various areas may be presented through various formats including lectures, workshops etc. Punjab can create a platform or an event that ensures dialogue between universities and students and promotes knowledge exchange.

A similar successful case study that was implemented in the early 1980s in UK is the Warwick Manufacturing Group. This example is a case in point of an academic department at a University that improves competitiveness through the application of innovation, new technologies and skills deployment, thereby bringing in academic rigor to industrial and organizational practice.

The research forum would comprise four complementary programs/tracks aimed at various dimensions related to research work and career for researchers and research-industry linkage and research-citizen link.

- 1) Research track: This track will be the focal point of the forum where renowned researchers will host talks, seminars, webinars, workshops, debates, discussions on various emerging topics of research currently underway in the State and country. Specifically, this track will be used to discuss the issues related to scientific communication and the relationship between research and community. This will be handled by the Program Committee in coordination with Centre of Excellence in Emerging Technologies.
- 2) Career for researchers track: This track will be specifically addressed to PhDs, young researchers and students who will be given the opportunity to discuss the future of research with respect to policies, flexibility, scientific publications and communication. It can also highlight the other skills required for the scientific career including inter-personal communication, writing skills as well as preparedness for job interviews. This track will provide informal forums for young researchers and students to interact with prominent researchers to talk about science and scientific careers in a pleasant and informal environment. At the same time, students and researchers will get an opportunity to interact with professionals from the industry and develop an understanding of the employment opportunities currently available for specific areas of study. At the same time, these interactions will enable industry to identify potential employees and target institutions that are doing relevant research in specific areas. The state can also consider inducting/ recruiting a minimum critical number of, say 100, world class researchers to improve the quality of research initially.
- 3) Research-industry linkage: This track will be specifically addressed to businesses and entrepreneurs with focus on applied research and opportunities for development of new highly innovative businesses. At the same time, it will provide a forum for non-profit organizations, universities and incubators to present innovative activities and prototypes.
- 4) Research-citizen link: This track will link researchers with broader community where their research outputs will be used. Under this track/program, collaborative projects may be undertaken by researchers and community members and schools in the state, where the community will actively participate in the collection of scientific data. Participants involved can contribute to scientific research by collecting data following scientific protocols that will be reflected in the real outcomes of scientific research. Participants, especially students and young researchers can also discover potential pathways for careers in science. The forum can award and recognize the participation of participants at the program. This will also improve the awareness of science education in schools which can lead to better quality of inputs for technical education.

Punjab can initiate a program to set up Research Laboratory and Knowledge Resource center with the following functions

- 1) Sector-focused laboratory and research centers to encourage other institutions/students from other institutions to take up research in their area of interest.
- 2) This center can serve as a regional hub for research and learning and host arrangements such as 'Warwick Manufacturing Group' (explained earlier in box item).
- 3) This Centre can also provide policy support to Government in the area of science, technology and innovation (STI) systems
- 4) This Centre can improve linkages in the industrial sector between SMEs, large firms, science and technology institutions, and business associations

This Centre in collaboration with the Department of Technical Education and Industrial Training can also develop a 'Citation Index' to track all publications of all Institutes in the State. PSBTE&IT/SCVT should give monetary incentives to faculty and researchers for publications and incentives should not be merely based on quantity of publications, but it should depend on the quality of journals published in.

To inculcate a research culture, collaboration with foreign universities/institutions can be explored. Both government to government and institute to institute interactions can be considered for this purpose.

The Department of Technical Education/PSBTE&IT/PSSDS should provide funds to institutes based on their performance which can be used to incentivize young faculty members and students to take up research in the area of interest. In addition, the Department can organize to have 'Priority Research Fund' for investments in projects of state importance. The Department should constitute a Research Council in the state to select and disburse funds for these projects. The disbursement of research funds can be based on the performance of institutes where the better performing institutes can avail of more research funds than others.

7.5 Institutional Mechanisms

Punjab should also set up a State Entrepreneurship and Placement Cell (SEPC) which can design and implement the TEP program. The SEPC can also be responsible for developing the entrepreneurship awareness and development programs including mentorship programs, financial assistance schemes, coordination with sector skill councils, workshops, etc. This agency can also be made responsible for carrying out certain placement related activities like identifying opportunities with private and public enterprises, conducting job fairs, etc. for institutes that do not possess adequate capacity. This body can have members from government agencies like DoTE, Punjab InfoTech, PIDB, etc. New models of centralizing and outsourcing the placement function at institutes may be considered, for e.g. the students during admission may be recruited for a company based on the aptitude tests and interviews so that the funding of the education can be partially shared by the company. The placement cell at each institute and the head-quarters should be responsible for coordinating the Entrepreneurship Development Programs at the institute level.

In order to create a research forum, Punjab should also set up a Program Committee with a multi-disciplinary team of eminent researchers from IISER, ISB, INST, etc. and leading

entrepreneurs as well as representatives from premier educational institutions in the state. This Committee can be chaired by the Principal Secretary, Department of Technical, Government of Punjab. In addition, the Committee might have representations from other related Departments such as Department of Industries and Commerce, Punjab Information Technology and Communication (PICTC Ltd.), Department of Higher Education, etc. In order to achieve success, an event management agency can be engaged with the responsibility to engage and execute the entire event.

Punjab can set up Research Laboratory and Knowledge Resource center either at the upcoming Multi-Disciplinary Academies or ITOT with grants from the State Government.

7.6.1 Key Activities and Timelines

Activity	Timeline
Setting up of the SD 'Policy Planning, Implementation and Monitoring Cell (PPIMC)'	Short Term
Set up a State Entrepreneurship and Placement Cell (SEPC) to design and implement the Technology Entrepreneurs Parks (TEP) program	Short Term
Creation of entrepreneurship portal and other awareness programs	Short Term
Set up a Program Committee for creating a research forum	Short Term
Organize research funds for colleges	Short Term
Initiate a program to set up TEPs in each district	Medium Term
Design and implementation of entrepreneurship awareness and development programs (EDP and EAP) and mentorship programs	Medium Term
Implementation of financial assistance schemes	Medium Term
Set up Research Laboratory and Knowledge Resource Centre	Medium Term
Cluster-based mentoring of ITIs	Medium Term

7.6.2 Indicative Budget

Activity	Indicative Budget (in lakhs)
Setting up of 'Sector Skills Councils (SSC)' (10 sectors)	150
Setting up a State Entrepreneurship and Placement Cell (SEPC)	50
Design and implementation of the Technology Entrepreneurs Parks (TEP) program	30
Implementation of program to set up TEPs in each district (for 7 Districts in phase 1)	700
Setting up a Program Committee for creating a research forum	15
Research funds for Institutes (20 Institutes)	500
Design and implementation of entrepreneurship awareness and development programs (EDP and EAP) and mentorship programs (2 programs)	100
Setting up Research Laboratory and Knowledge Resource Centre	500
TOTAL	1895

7.6.3 Monitoring Indicators

<i>Outputs</i>	<i>Outcomes</i>
Number of TEPs created	Number of graduates opting for self-employment
Number of EDPs and EAPs conducted	Number of jobs created through TEP program
Number of students covered in EDPs and EAPs	Number of publications in journals from Punjab
Number of research tracks created	
Number of research forum created	
Percentage of funds allotted for research	

Chapter 8

Management and Governance

8.1 Key Actions:

- 1) Create an **Apex body for Vocational Training and skill development** to coordinate and drive the entire training and skill development, which can be named as new Skill Development Technical University (SDTU)
- 2) Create a **comprehensive monitoring and evaluation framework** for Skill Development in Punjab
- 3) Revise **personnel policy** to ensure accountability and outcomes
- 4) Set up '**Punjab Skill Development Accreditation Agency**' for defining the standards of training in different domains and accredit institutions
- 5) Implement reforms in **institute funding** based on the performance of the institute
- 6) Design and develop a **Skill Development Management Information System (SD-MIS)** for effective and informed decision making
- 7) Carry out **impact evaluation studies** and publish the findings
- 8) Form **Skill Development Gateway of Punjab** to connect all technical institutes in the state through technology platform
- 9) Devise strategy for **innovative financing mechanisms including a PPP blueprint** for training and **create a PPP cell within the Department** for this purpose
- 10) Conduct seminars and workshops to promote private/ global investment in technical education
- 11) Introduce **functional, administrative, financial autonomy of institutions** in a phased manner
- 12) Enable **internal revenue generation** at institutes

Among the recommendations of NKC on vocational education is the need to quantify and monitor its impacts. Data should be collected periodically and analyzed in order to assess the impact of education and training on employability. Empirical evidence on wage premium or other advantages enjoyed by graduates, seat utilization in institutes, nature of employment post-training, efficacy of various schemes, etc. is essential for continuous improvement. A detailed exercise of manpower analysis is a necessary step to understand the nature and quantum of demand and the mismatch between the skill outcome and the requirements of the labour market.

In addition to undertaking interventions aimed at enhancing the state along the dimensions of technical education, it is necessary to monitor the progress of Punjab along the various dimensions. This will enable a periodic evaluation of whether the state is progressing in the appropriate manner towards its objectives and vision.

8.2 Detailed Interventions:

8.2.1 Apex Agency for Industrial Training/ Skill Development

To ensure coherence and management of training provision, a state level apex agency to coordinate and drive the entire training and skill development system is

necessary. While the PTU and the PSBTEIT perform this function for degree and diploma programs, no such autonomous and empowered body is available for Industrial Training. The said agency should include representation from all relevant stakeholders, including government policy makers, employers, public and private training providers, civil society, alumni associations, and development partners.

The discharge of all academic activities related to industrial training can be entrusted to this agency. For instance, in case of Punjab either the existing SCVT/ PSBTEIT can be entrusted with additional mandate or a new Skill Development Technical University (SDTU) can be constituted for this purpose. The SDTU can function as an independent authority with powers equivalent to a university. A similar initiative has been proposed in Gujarat to establish a vocational training University³. Such universities are present in many countries like China, Germany, Netherlands, Sri Lanka, etc.

This apex body should be responsible for the overall 'standard /quality setting' to ensure consistency in the delivery of training across sectors. Separate working groups on access, infrastructure and instructor development can be formed under the SCVT/SDTU to aid this activity. The focus of this agency can be on all academic aspects of industrial training and skill development like curriculum, pedagogy, faculty development, creating learning resources etc. It should also be responsible for the implementation of programmes such as the National Skill Development Mission (NSDM) in Punjab. A similar institution in the state of Gujarat can be referred to.

There is a lot of scope to improve coordination between various institutions, especially the NCVT, DGET and the SCVTs, and improve their effectiveness through more functional partnerships⁴. The reorganized SCVT/ SDTU should closely interact with the central bodies for development of standards and norms.

8.2.2 Monitoring & Evaluation Framework

For an effective and responsive Vocational Training and Skill Development system, a clear and comprehensive monitoring and evaluation framework needs to be articulated which covers the following aspects

- 1) Standardized parameters for performance of the institutes covering infrastructure, faculty, and student services like admission, training and placement should be clearly defined. Thereafter a comprehensive rating system can be introduced. This will help move away from regulation to performance based management of institutions. The Department has already initiated the system of ranking its institutions based on certain parameters such as infrastructure, placements of students, availability of faculty staff, etc. However, only institutional ranking system has been put into place. Rankings on various parameters such as quality of faculty, industry-linked academic institutions, and accredited institutions should be publicly displayed on the

³http://www.teamlease.com/index.php?module=content&pid=teamlease_university

⁴http://12thplan.gov.in/12fyp_docs/9.pdf

Department web portal to encourage transparency and students to make the right choices. The rating information for each branch for each institute can be made available to the prospective students to help selection of institutes during the admission process. It is also highly recommended that a similar ranking mechanism be introduced for diploma-level institutions wherein the rankings are made available on the web portal of either the 'Department or Board'.

- 2) Specifically for ITIs, standardized parameters for performance of the institutes covering infrastructure, faculty, and student services like admission, training and placement should be clearly defined. Thereafter a comprehensive rating system can be introduced. This will help move away from regulation to performance based management of institutions. The rating information for each discipline for each institute can be made available to the prospective students to help selection of institutes during the admission process. The current academic audit and other departmental inspections should be aligned to the identified performance parameters. Currently, the funding received by Government ITIs is not linked to the performance of the institute which results in lack of accountability. In the medium term once the rating system is stabilized the funding received by the institute should be linked to its performance of the institute. This would require setting up of a '*Punjab Skill Development Accreditation Agency*', which can be part of the SDTU/SCVT which will be responsible for defining the standards of training in different domains and accredit institutions based on these standards. This body would license accreditation agencies and prescribe standards for certification. The procedures and methodologies adopted by the body would need to be simple and transparent to ensure unhindered growth in the sector.

The NKC also suggests establishment of an independent regulatory agency for regulating entry of new institutions and accreditation of all institutions as a crucial step towards modernizing the VET system.

- 3) The personnel policy of IT Wing of the Department should be suitably revised to ensure accountability.
- 4) Institutes should be encouraged to share their Annual Plan/Report and Long term Strategy (5 Year Plan) in their respective websites.
- 5) In addition periodic (once in 2-3 years) impact evaluation studies needs to be undertaken to aid policy making and ascertain the effectiveness of implementation of the schemes/ interventions. The M&E framework should include the outcomes expected from each scheme or intervention.
- 6) The M&E framework should be the basis for designing the management information system (discussed below) so that the data collection can be streamlined reducing duplication of effort.

8.2.3 Ensure accreditation and high ratings of all institutes of Skill Development

There is a serious dearth of information on the quality of institutions Skill Development. As a result, students have to make the choice of Institutes based on limited

information such as available placement statistics, non-rigorous media ratings and unreliable information in advertisements.

An accredited Institute will also receive a rating of performance. The ratings of Institute should be made known to the people. Performance incentives should be given to institutions with a high accredited rating.

- 1) The Technical Education & Industrial Training Department should mandate accreditation of all government and private aided institutions and that the accredited rating of the college is prominently displayed in the college office/ website.
- 2) All Institutes, including private ITIs, with a high rating should receive a Institute grant for discretionary expenditure.
- 3) Technical Education & Industrial Training Department should change the existing system of setting a single ceiling for fees that can be charged by private Institutes for non-government seats. The new system should have three ceilings for fees that can be charged depending on whether the college gets a high, medium or low rating. All private institutions that are not accredited should be permitted to charge fees only up to the lowest fee ceiling.
- 4) Institutes that have been rated 'high' can be considered for grant of autonomy status.

8.2.4 Skill Development Management Information System (SD-MIS)

To improve the availability of information about the availability and effectiveness of various branches under each of the courses, information collected needs to be consolidated in standard forms and made available to relevant stakeholders- DoTE&IT, other departments (industry and commerce, school education), industry bodies and students, etc. in digital format in a single platform (department website) to improve decision making by each stakeholder. This information needs to be updated regularly with the information collected through inspections and other reporting mechanisms. While the entire data may be housed in a Management Information System (SD-MIS) stakeholder specific views should be available in the website. The information related to the capacity, admissions, infrastructure, scholarships, fees, industry collaborations (MoUs), placements, faculty, learning achievements, alumni details should be collected.

The introduction of e-Governance (e.g. ERP- Enterprise Resource Planning Package) for Skill Development through SD-MIS can facilitate in improving transparency, providing speedy information, dissemination, improving administrative efficiency. Implementing such a system will also help us to monitor academic standards by enabling continuous monitoring, assessment and meaningful evaluation of the instructor and the student.

The SD-MIS should also include student and administrative support systems to cover processes such as registration and fee collection, examination and student records. By disseminating specific information to the parents (e.g. attendance and evaluation information) it can also enhance the parents' involvement. Over a period of time the system can obtain feedback from students to modify course curriculum if deemed appropriate by the authorities which can increase the number of employable students. Once this system has been operationalized, district-level report cards can be generated which can improve

planning, and decision-making, forecasting, etc. The reports generated on the web-based system and performance of institutions can be tracked through this.

The NKC recommends creation of an electronic database of certified training providers as well as electronic identification for certified workers to ensure recognition of certification by employers, both in India and abroad,. The VT MIS can act as a repository of such a database at the state level and can be synchronized to the national academic depository in the future as envisaged by the proposed legislation of National Academic Depository (NAD) Bill.

On the lines of the 'National Knowledge Network' recommended by National Knowledge Commission, Punjab can form a Vocational Training Gateway which allows all the institutes' to connect by extending computer infrastructure. The Eleventh Five Year Plan has also emphasized on the National Mission on Education through IT. The Vocational Training Gateway can provide the following:

- 1) Generate useful learning content and provide connectivity to institutes and learners
- 2) Offer training for teachers to make the best use of the e-contents
- 3) Improve the standards of education in government colleges as well as private colleges

8.2.5 Blueprint for PPP in Skill Development

The strategies described so far are directed towards achievement of the earlier defined policy objectives for technical education. These objectives are attainable only when there are adequate facilitating outputs such as colleges, teachers and infrastructure. Infrastructure is a critical success factor in realizing the objectives of technical education. It is expected that the bulk of investments in infrastructure will be made by the private sector, with the government playing the role of an enabler and facilitator. However, essential infrastructure where the private sector shows little interest should be developed by the government.

Seminars and workshops to promote private/ global investment in technical education and exploration of various models of partnerships could be considered to engage with the private sector for creating such a framework.

A blueprint for private sector involvement is required to spell out the precise nature of the involvement of private sector articulating how, when, where, and why private partners can become involved in developing, underwriting, and managing such projects including financial strategies for launching and sustaining education and training projects.

The introduction of PPPs raises issues of governance and accountability and the government should ensure that PPPs deliver the desired end result, i.e., improved quality of services to the people at reasonable prices. Accordingly the concession agreements and other contracts governing performance under these PPPs should be linked to the outcomes envisaged as part of the process in terms of SLAs (Service Level Agreements) and KPIs (Key Performance Indicators). To enforce strict monitoring compliance to these agreements requires enhancing the project management capabilities of the government agencies commissioning these projects. In addition to specifying clearly the expected the quality of services, mechanisms to enforce obligations and also punish violations are necessary.

Another aspect is the selection process for these projects which should be competitive and transparent in line with the public procurement laws and regulations. Where competition is not feasible, the method of choosing the partner must be highly transparent. The process of selection should be regularly audited to check compliance with the notified procedures.

The blueprint document should relook at the funding of ITIs and innovative financing mechanisms including PPP (with financial investment by the private partner) for various aspects including ITIs, developing training content, delivery of other services related to skill development, etc. It should encourage private investments through incentives such as free land or contribution to capital investments, etc.

While the schemes to upgrade ITIs into 'Centers of Excellence' and 'PPP scheme' aims to introduce greater autonomy at the institute level, there is a need to change the mind-set and build capacity among management and staff of these ITIs to actualize this concept. This involves revamping the

Institute Management Committee wherein the government maintains an arm's length relationship by effectively delegating powers to local management of institutes and allowing greater institutional autonomy/ governance.

The various aspects where PPP may be explored range from infrastructure to design and delivery of courses by the private partner including

- 1) Creation of infrastructure required for practical labs/ delivery of the courses/ training programs including classrooms, sports facilities, equipment, IT infrastructure, etc. with repair & maintenance of the same.,
- 2) Design and development of courses including lesson plans, course content, presentations, assignments, test papers, answer sheets & other teaching material.
- 3) Advertisement, orientation, awareness creation, printing of admission forms, brochures, pamphlets, posters, answer sheets, other publicity material, and consumables for training course
- 4) Human resource management
- 5) Organizing job festivals/ job melas / campus interviews for trainees.

The blueprint should also set the framework for PPP in skill development in Punjab including

- 1) Institutional funding could be limited to an upfront capital grant and extended to well performing private institutes to encourage trades that are in demand but not offered in private institutes due to the high initial investment. Recurring funding requirement could be linked to the performance of the institute. Land incentive norms based on the intake capacity and ultimate student strength of the institutions should also be specified.
- 2) Special incentives for setting up institutes in extremely backward/ border areas of the state where there may be initial difficulty in attracting students as well as faculty or institutes for disadvantaged groups like women, SC/ST trainees, etc.

- 3) In addition, one of the financial incentives that can be extended to private players is the tax subsidies/ breaks to start institutes, especially in identified sectors.
- 4) Norms on admission process/fee structure/ seat sharing in case of such institutes should be specified including transaction models for provision of services.
- 5) Norms on participation of foreign players including NRIs, having experience in the field of skill development
- 6) Representation of state government management of the institute to ensure its proper functioning including norms on ownership of the property wherein the government should own assets in the proportion of support provided by it.
- 7) Case by case treatment for potential conflict of interest e.g. between training and certifying agencies, delivery and quality control agencies, etc.
- 8) Applicable performance guarantee/bond with respect to achievement of the pre-agreed targets in terms of outcomes and deliverables.
- 9) Eligibility norms may include empanelment with Government of India agencies e.g. Private Training Providers (PTPs) empanelled with various ministries, etc.
- 10) While service levels for private sector are common, such service levels should also be defined for services provided by various government agencies as part of the PPP blue print.

8.3 Institutional Mechanisms

A PPP cell can be created in the Department to facilitate private partners by setting up a single window clearance system for all aspects related to PPP in the training and skill development system. This cell shall decide on any application under PPP within a specified time-limit from the date of receipt of the application.

This cell can also be responsible for implementing interventions related to the phased handover of management of training institutes to private organizations and promotion of internal revenue generation for institutes. In other cases the institutional mechanisms are included in the interventions mentioned above.

8.3.1 Key Activities and Timelines

Activity	Timeline
Creation of an apex body for Industrial Training and skill development (SCVT/SDTU)	Short Term
Creation of a comprehensive Monitoring and Evaluation framework	Short Term
Design and development of a SD-MIS	Short Term
Formation of a Skill Development Gateway of Punjab	Short Term
Creation of blueprint for PPP in skill development	Short Term
Set up of a PPP cell in the Department	Short Term
Revision of fee structure across government and private ITIs	
Revision of personnel policy	Medium Term
Promotion of Internal Revenue Generation for institutes	Medium Term
Set up of a 'Punjab Skill Development Accreditation Agency'	Medium Term
Carry out impact evaluation studies and publish the findings	Medium Term
Conduct 'Way forward' Seminars and workshops to promote private/global investment in technical education	Short Term

8.3.2 Indicative Budget

Activity	Budget (in lakhs)
Creation of apex body for industrial training and skill development (SCVT/SDTU)	1000
Design and implementation of Comprehensive Monitoring and Evaluation framework	50
Design and development of a SD-MIS	500
Creation of blueprint for PPP in skill development	50
Set up of a PPP cell in the Department	20
Set up of a 'Punjab Skill Development Accreditation Agency'	50
Impact evaluation studies and publish the findings (5 studies across schemes)	250
Way forward' Seminars and workshops to promote private/ global investment in technical education (3 seminars)	30
TOTAL	

8.3.3 Monitoring Indicators

Outputs	Outcomes
Number of evaluation studies conducted	Quality of data collected through MIS
Number of Universities linked through the gateway.	Report cards generated through MIS
Number of ITIs/ VTPs under PPP mode	Information utilized for decision making
Number of government ITIs under private management	Internal revenue generated through infrastructure sharing

Chapter 9

Skill Development – National Goals and Strategy

9.1 Introduction

Skill Development is considered synonymous with vocational training (as distinguished from vocational education) and till very recently the ITIs and Polytechnics were expected to shoulder the major burden of skilling the youth in vocational streams. However, it was realized that the current system is not capable of delivering either on the quality or the quantity of the requirement of skilled personnel in the country. It was also realized that unless Skill Development is seen as a national priority, the country would not be able to reap the demographic dividend. Not only this, a large unskilled and therefore unemployable and unemployed young work force will create social distress of great proportions, which may lead to demographic disaster. It was in this context that a National Skill Development Policy was launched in 2009 with the aim of skilling 500 million persons by 2022 that India @ 75.

9.2 National Policy on Skill Development

The National Policy envisions the establishment of a National Skill Development Initiative with the following mission: **National Skill Development Initiative will empower all individuals through improved skills, knowledge, nationally and internationally recognized qualifications to gain access to decent employment and ensure India's competitiveness in the global market.**

9.3 Objectives of National policy

The objectives of the national policy on skill development include:

- a) Creating opportunities for all to acquire skills throughout life, and especially for youth, women and disadvantaged groups.
- b) Promoting commitment by all stakeholders to own skill development initiatives.
- c) Developing a high-quality skilled workforce/entrepreneur relevant to current and emerging employment market needs.
- d) Enabling the establishment of flexible delivery mechanisms that respond to the characteristics of a wide range of needs of stakeholders.

- e) Enabling effective coordination between different ministries, the Centre and the States and public and private providers.

9.4 Scope of Policy :- The Scope of the National Skill Development Policy is wide and encompasses all activities and schemes that have the potential to contribute to the gigantic target of skilling 500 million by 2022 and it includes:

- a) Institution-based skill development including ITIs/ ITCs /vocational schools/technical schools/ polytechnics/ professional colleges, etc.
- b) Learning initiatives of sectoral skill development organised by different ministries /departments.
- c) Formal and informal apprenticeships and other types of training by enterprises
- d) Training for self-employment/entrepreneurial development
- e) Adult learning, retraining of retired or retiring employees and lifelong learning
- f) Non-formal training including training by civil society organizations
- g) E-learning, web-based learning and distance learning.

9.5 Vision for Implementing the Policy

- **Scaling up:** Increase skill development capacity from 3.1 million to 15 million annually.
- **High inclusivity:** The skill development initiatives will harness inclusivity and reduce divisions such as male/female, rural/urban, organized/unorganized employment and traditional/contemporary workplace.
- **Dynamic and demand-based system planning:** The skill development initiatives support the supply of trained workers who are adjustable dynamically to the changing demands of employment and technologies.
- **Choice, competition and accountability:** No discrimination between private or public delivery - importance on outcomes, users choice and competition among training providers and their accountability.
- **Policy coordination and coherence:** Skill development policy to be an integral part of comprehensive economic, labour and social policies and programmes. A framework for better coordination among various Ministries, States, industry and other stakeholders will be established.

9.6 Equity

The policy emphasise equity in access irrespective of gender or economic or social class, making special provisions for disadvantaged groups such as minorities, SCs and STs and persons with disabilities.

9.7 National Institutional Arrangements

The National Policy recommends the formation of Skill Development Missions, both at the State and National levels. To create such an institutional base for skill development in India at the national level, the following three-tier institutional structure was created at the national level in early 2008:

- **National Council on Skill Development (NCSD)**:-It is headed by the Prime Minister and with Ministers of various skills relevant areas as members. The Council has various experts in the field of skill development as its members.
- **National Skill Development Coordination Board (NSDCB)**:- The NCSD is assisted by the National Skill Development Coordination Board chaired by the Deputy Chairman, Planning Commission which coordinates action for skill development both in the public and the private sector.
- **National Skill Development Corporation (NSDC)**:- The National Skill Development Corporation India (NSDC) is an institutional arrangement in the form of a non-profit corporation set up by the Ministry of Finance for encouraging Public Private Partnership in skill development in India. It aims to promote skill development by catalyzing creation of large, quality, for-profit vocational institutions. It provides funding to build scalable, forprofit vocational training initiatives.
- **National Skill Development Agency(NSDA)**:- To have a coordinated action on the Skill Development front, an over arching mechanism of National Skill Development Agency was set up in June 2013, which oversees the activities of all the above mentioned bodies. The NSDA is headed by an Expert in the field of Skill Development and is given the rank and status of Cabinet Minister of union Govt..
- **National Skill Qualification Framework(NSQF)**:- To have a uniform structure of courses and curricula, the NSDA, GoI has notified National Skill Qualification Framework on 27th Dec. 2013.

9.8 The National and Punjab state targets for skill development for the 12th plan (2012-17) are as follows:

Financial Year	National	% of population above 14+	Punjab
2012-13	75	1.00%	1.66
2013-14	90	1.18%	1.94
2014-15	100	1.3%	2.22
2015-16	110	1.45%	2.49
2016-17	125	1.65%	2.77
Total	500	6.6%	11.36

9.9 Role of Central and State Governments in Skill Development

As discussed earlier, the skill development initiative incorporates all skill development arrangements, activities and schemes that include the formal vocational trainings being provided by ITIs, Polytechnics and colleges maintained and run by State governments and schemes of the central government ministries which are mostly implemented by the State governments. It also includes skill development activities being directly undertaken by Ministries and organizations of the central government and also by the newly constituted National Skill Development Corporation.

9.10 State Skill Development Mission

State government strategy and programmes for skill development are woven around these central schemes and support institutions. Many State Governments have set up State Skill Development Missions (SSDMs) as nodal bodies to anchor the skill development agenda in the State. SSDMs are expected to play a significant role in accelerating the pace of skilling, through identification of key sectors for skill development in the State, as well as coordinating with Central Ministries and State Line Departments, as well as industry and private training organizations. Each State has adopted a structure of SSDM that best suits the local environment and the State vision for skill development.

9.11 Major Schemes and Programmes of Central Government for Skilling

In the Central Government, around 24 Ministries are closely involved in skill development. These ministries mainly operate in one of two ways - through setting up own training capacity in specific sectors (examples of such ministries include Ministry of Labour and Employment, Ministry of Agriculture, Ministry of Health and Family Welfare etc) or through providing per-trainee costs of training for specific target populations (examples of such Ministries include Ministry of Rural Development, Ministry of Women and Child Development, Ministry of Urban Development etc). Major Central Government Schemes for skill development are detailed below.

9.11.1 Skill Development Initiative (SDI) Scheme

This is the flagship scheme of the Ministry of Labour to implement the skill development mission of the central government. Under this scheme, Vocational Training Providers (VTPs), both public and private, are registered to impart training to youth in more than 680 courses notified as Modular Employability Skills (MES). The trainees are assessed by independent assessors and trainee costs are reimbursed to the VTPs at the rate of Rs. 20

to Rs. 25 per hour of training in case of assessed trainees. The Scheme emphasizes effective partnerships with the private sector and proper assessment and certification of trainees but it is not placement linked. The target for skilling under this scheme is 8 lakh during 2013-14 with an allocation of Rs 700 crore. Annual targets for remaining years of the plan period may be still higher. The States are allocated targets and commensurate funds on the basis of their population share.

9.11.1(a) Kaushal Vikas Yojna

This is another flagship program of the Ministry of Labour to implement the skill development mission of the central government. Under this scheme, 1500 ITIs will be opened in the unrepresented Blocks of the country and 50,000 Skill Development centres would be opened under PPP Mode. The State Govt. will provide the Land free of cost and other logistics whereas the Central Govt. will provide Viability Gap Funding (VGF) up to the extent of 40% of the project cost. Rest of the project cost will be borne by the Private Player. Exact contours of the scheme are being finalized by the Ministry in consultation with the Ministry of Finance and Planning Commission. For the State of Punjab, 43 ITIs and 2500 SDCs are to be set up under this scheme. In the first phase 22 ITIs and 250 SDCs are being taken up.

9.11.2 Swarna Jayanti Shahari Rozgar Yojana (SJSRY)

The Skill Training for Employment Promotion among Poor (STEP-UP) component of the SJSRY scheme aims to skill the urban BPL population and provide placement/ self employment opportunities. 50% of total funds under SJSRY can be used for skill development through STEP-UP, for which an average per trainee cost of Rs 10,000 has been allowed. This scheme is implemented at the level of districts/urban local bodies. The Scheme provides that the percentage of women beneficiaries under STEP-UP shall not be less than 30% and SCs and STs must be benefited at least to the extent of the proportion of their strength in the city/town population below poverty line (BPL). A special provision of 3% reservation is also required to be made for the differently-abled, under this programme. In addition, 15% of the physical and financial targets under the Skill Training for Employment Promotion amongst Urban Poor (STEP-UP) at the national level are earmarked for the minority communities. SJSRY has a total fund allocation of Rs. 814 crores with a target of skilling 5 lakh people in 2013-14.

9.11.3 National Rural Livelihoods Mission (NRLM)

The Ministry of Rural Development (MoRD) allows for Special Projects for Placement Linked Skill Development of Rural Youths under Aajeevika (NRLM). It has targeted 8 lakh people in FY 2013-14. Under this Scheme, rural BPL youth are provided training, after which they are placed in the organized sector. The training is of short duration, normally up to 3 months. The implementation of this Programme is entrusted to qualified Project Implementing Agencies (PIAs), having capabilities in both training and placement who mostly belong to the private sector. In the 12th Plan, skilling of 50 lakh rural B.P.L youth would be undertaken under NRLM with an outlay of Rs. 7500 to Rs. 8000 crores. The Ministry has therefore, accorded high priority to this work and has set up a Skills and Placement Sub Mission under NRLM. The funds are sanctioned at Centre. At the State level, the State Rural Livelihood Missions are responsible for implementation of the scheme.

9.11.4 Backward Regions Grant Fund (BRGF)

Under this scheme, funds are allocated to notified backward districts for preparation of integrated economic development plans. Although, so far no funds have been earmarked for skilling, the scheme provides enough flexibility to the states to incorporate this in the Plans.

9.11.5 Multi-Sectoral Development Programme (MSDP)

Multi Sectoral Development Programme is targeted at economic upliftment of Minorities in notified districts with large population of Minorities. Programme funds may be utilized for creation of social and economic infrastructure and may be used for programmes that directly benefit the minorities. Districts are expected to prepare the plans which are implemented after they are approved by the central government. The MSDP scheme has no specific component on skill development but work participation rate and literacy are two of the focus areas and it should be possible to take up placement linked skill development activities under this scheme.

9.11.6 Border-Area Development Programme (BADP)

This scheme is run in the blocks which are on international borders and funds may be utilized for capacity building. Union Finance Minister, in his speech while introducing the budget for 2013-14 has underlined that at least 5% of funds under this scheme are to be earmarked for skill development.

9.11.7 SCA to SCSP and TSP

Special Central Assistance (SCA) to Scheduled Castes Sub Plan (SCSP) and Tribal Sub Plan (TSP) is a central scheme under which 100% grant is given to the States/UTs as an additive to their Scheduled Castes Sub Plan (SCSP). The main objective is to give a thrust to family oriented schemes of economic development of SCs below the poverty line, by providing resources for filling the critical gaps and for providing missing vital inputs so that the schemes can be more meaningful. Since the schemes / programmes for SCs may be depending upon the local occupational pattern and the economic activities available, the States/UTs have been given full flexibility in utilizing SCA with the only condition that it should be utilized in conjunction with SCP and other resources available from other sources like various Corporations, financial institution etc. The Guidelines are open-ended and the Union Finance Minister, in his speech while introducing the budget for 2013-14 has underlined that at least 10% funds under this scheme are to be earmarked for skill development.

9.11.8 Schemes for Districts Affected by Left Wing Extremism, MoLE

This programme is administered by Ministry of Home Affairs and funds may be used for various activities including for setting up infrastructure for skill development.

9.11.9 Skill Up-gradation Training Programme (SUTP), Ministry of Youth Affairs and Sports

This scheme provides skill development trainings for women in about 200 border/tribal/backward districts across India. It has its centres in ___districts of Punjab.

9.11.10 Building and Other Construction Workers' (BOCW) Welfare Cess

The Parliament legislation provides for creation of a fund where all receipts on account of labour cess are to be deposited. This is an un-tied fund for the state which may be used for setting up skill development centres for construction workers and their dependents and for providing them trainings. In 2013, the Director General Employment & Training, GoI has directed all the States to utilize at least 20% of the Cess collected each year by providing Skill Development to Construction Workers and their dependents.

9.11.11 Integrated Skill Development Scheme, Ministry of Textiles

The Ministry of Textiles target is 2.5 lakh in FY 2013-14. Punjab may target at least 5% of this number, as the State accounts for close to 5% of the country's employment in the Sector.

9.11.12 Hunar Se Rozgar (HSR), Ministry of Tourism

The Ministry of Tourism had a target for training 54,000 candidates in the country in FY 2013-14, target for next year can be assumed as 55000. Punjab can target 5% of this. Further, State can facilitate trainings by tie-ups with hotels, etc. MoT prescribes an average training cost of Rs 11,000. State has the sanction and implementation powers.

9.11.13 Trainings sponsored by the National Skill Development Corporation (NSDC)

The NSDC aims to set up training capacities across the nation in Public Private Partnership mode. The NSDC targets to train 10,00,000 people in FY 2014-15, through its empanelled Training Partner. Approximately, 5% or, 50,000 people should be skilled in Punjab under this scheme every year.

Chapter 10

Status of Skill Development in the State

10.1 Introduction

The State has a reasonably large set up of ITIs/polytechnics and degree colleges imparting education and training in vocational areas but the quantity as well as quality of trainings provided by these institutions is a cause of concern. The total availability of seats in these institutions (approximate annual intake of 1.5 lakh) is to be seen in the perspective that approximately 8 lakh youth drop out of the formal general education streams between class Vth and XIIth and a further 1 lakh drop out after completing class XIIth. Thus, every year 9 lakh youth are available to join the labour force provided they are appropriately guided and provided facilities exist to equip them with useful and employable skills. This challenge is to be addressed by launching short duration skill development programmes which are employment oriented and which are designed based on the skill needs of the economy. Several departments of the State aim to contribute to this goal through implementation of various central schemes but, as subsequent discussion would disclose, the achievements are far short of the target.

10.2 Vocational and Professional Education for Skill Development in ITIs/Polytechnics and Degree Institutions

Punjab State has a population of about 2.77 crore which accounts for 2.5% of India's population. The State has about 384 ITI and ITCs which have an annual intake of approximately 60,000 students. There are about 137 polytechnics, both government and private, which have an annual intake of approx. 53000 students. In addition, there are approx. 147 degree level institutions, mostly in private sector, with an annual intake of approx. 43000 in technical courses (engineering and management). Thus, the formal vocational education and training infrastructure provides skilling opportunity to 1.56 lakh youth in the age group of 14 to 23 years. It may however be noted that the average annual graduation from ITIs, Polytechnics and Degree sectors has been less than 50% of the Capacity per year as the capacity of the private institutions has not been fully utilised due to various reasons like un-affordability and quality of the training provided, which is not leading to instant employment on the basis of the Certificate/degree.

The key issues that need to be addressed in regard to the formal Skill Development vocational and training sector are:

- Capacity Utilization of private sector ITIs, Polytechnics and degree colleges has been less than 60% in recent years. This is due to several reasons. First, many of these institutions have been set up recently, so it will take some time for them to get established. Second, the quality of instruction in many private institutions is not satisfactory. Third, the employment scenario in recent years has become bleak. This has seriously impacted the admissions and large number of institutions offering MBA / PGDM and MCA degrees have shut down.
- The Existing capacity demands attention to the quality of trainings given and the kind of employability they can lead to. It is estimated that less than 40% of the graduates from ITIs and Polytechnics are able to get gainful employment after completion of course. It therefore becomes essential that quality issues in terms of curriculum and course structure, infrastructure, teachers and employability prospects be addressed.
- Inadequate utilisation of capacity may also be due to the fact that the available capacity is very skewed. As per the analysis of the availability of seats in various districts of the state, the availability of seats (ITIs) varies from 887 (in Ludhiana) to 254 (in Moga), while on an average in Punjab there is a sanctioned seat for every 439 persons. In case of degree colleges, the availability of seats varies from 1535 (in Ferozpur) to 135 (in SAS Nagar), while on an average in Punjab there is a sanctioned seat for every 801 persons,
- Over a period of time, capacity of the vocational sector institutions needs to be increased to address the skewness and also to provide adequate access to the youngsters.

10.3 Skill Trainings under the Apprenticeship Training Act

There are about 7550 seats available for Apprenticeships in Punjab. The Government aims to ensure that the capacity is used to the optimum. There is potential to increase this capacity by engaging with all big industries, factories and company offices in the state by more than 5-6 times. The quality of these trainings shall be a priority and a system shall be put in place to avoid all discrepancies in admissions.

10.4 Performance under the Skill Development Initiative (SDI) Scheme in Punjab

The Skill Development Initiative (SDI) scheme was launched by Directorate General of Training and Employment (DGET), GOI, during 2008-09, where Skill

Development Programmes (more than 1400 programmes notified as Modular Employability Skills (MES) course, each of a duration ranging between 60 to 450 hrs, later the list pruned down to 680 odd courses in 2013 based on the popularity of the courses) were to be conducted by public and private institutions registered as Vocational Training Providers (VTPs). These VTPs were initially to be registered by DGET in collaboration with the state government and were to be reimbursed at the rate of Rs 15 per hour of training per trainee. The implementation of the SDI scheme was started by the Punjab State in 2008-09. To begin with the infrastructure available with Govt. ITIs of the state government departments, was made available the Govt. ITI were registered as VTPs for running these courses. More than 422 VTPs have been registered in the state which reportedly trained approximately 64350 persons since 2008-09. A total of Rs. 9.85 Crores had been reimbursed so far on account of Training cost and Assessment cost.

GOI launched the revamped SDI scheme in August 2010, with the same operational features but with the difference that responsibility for registration of VTPs and payments were devolved to State level Skill development societies. The scheme was started in right earnest after the formation of Punjab State Skill Development Society, which was constituted in March 2011 and advertisement was issued for registration of new VTPs in end 2011. Also, the registration of VTPs has been started to be done through the National Web Portal of the SDI Scheme.

The DGET, GoI had issued fresh guidelines for SDI Scheme on 11.09.2013 and in Dec. 2013 after the approval of the Apex Committee. Many far reaching changes had been made in the structure of the scheme and also the reimbursement of training cost has been increased from Rs. 15 to Rs. 20- Rs. 25 per hour per trainee assessed.. The effect of these new guidelines will be seen in the years to come. In 2013-14, a capacity of 158500 has been created. As of now about 17000 youth are undergoing training during 2014-15.

Some of the main reasons that seem to have contributed to this state of affairs are (a) the disillusionment of private sector providers with the scheme due to pending payment issues (b) absence of a dedicated organization for implementation of the scheme as no staff so far sanctioned for the society for managing the scheme (c) lack of leadership provided to ITIs who are as it is facing a severe shortage of trainers and (d) lack of district organization for mobilization of youth and for monitoring of the scheme.

10.5 Skill Development Trainings by various departments under Central Schemes:-

The skill development is also encouraged through schemes and funds made available by several central government Ministries and Departments. Many of these schemes are being implemented in the state but achievements are not very satisfactory as disclosed by the following details:

(a) Local Govt. Department:

The Swarna Jayanti Shahari Rozgar Yojana (SJSRY) is being implemented through this department. For the year 2013-14, the data about the no. of candidates trained and budget spent on it under the Skills Training for Employment Promotion amongst the Urban Poor (STEP-UP) component, is being collected. The scheme prescribes average cost of per training as Rs 10,000 per capita.

The SJSRY scheme has now been replaced by National Urban Livelihoods Mission (NULM) which shall have the Employment through Skills Training and Placement (EST&P) component accounting for 40% of the total NULM funds.

(b) Rural Department:

The Swarnajayanti Gram Swarozgar Yojana (SGSY) has been replaced by National Rural Livelihoods Mission (NRLM). At present, the placement linked skill training under NRLM is being implemented directly by the Central government on the basis of the projects submitted by state government. The data about the projects, which had been submitted and have been sanctioned is being collected from the concerned Department. The Central government proposes to hand over the responsibility for the implementation of the scheme to state government from 2014-15 provided appropriate structures is put in place.

(c) Panchayati Raj

Under The Backward Regions Grant Fund (BRGF), Punjab has been allocated around Rs. ____ crores under Participatory Plan of the fund. ____ districts of Punjab are eligible under this scheme but so far skill development has not been included in the state / district plans. The list of districts covered under BRGF is given in **Annexure ____**.

(d) Minority Welfare Department

The Multi-Sectoral Development Programme (MSDP) for Minority Concentrated Districts had been allocated about Rs. ___ crores to ___ districts for the 11th Five Year Plan i.e. about Rs. ___ crore for each year. Only ___ people were skilled under this scheme last year. The list of districts covered under MSDP is given in **Annexure ___**.

(e) Planning Department

Border-Area Development Programme (BADP) has an allocation of about Rs. ___ crores of which at least 10% can be used for providing training to the youth living in Border Area blocks. 18 blocks of 6 districts are eligible under these funds. It can be used for infrastructure development as well as providing trainings to people of these areas. ___ No. of trainings have taken place through these funds till now.

(e) Welfare Department

Special Central Assistance to Scheduled Castes Sub Plan (SCA to SCSP) is an open ended fund which has an allocation of about Rs. ___ crores for 2012-13. Most of these funds are lying un-utilized. Cumulatively, the Department trained ___ people this year against a target of ____. The Department has many unutilised buildings like hostels etc which may be used for student residential purposes or to impart trainings.

(f) Labour Department

The Building and Other Construction Workers' (BOCW) Welfare Cess is an Un-tied fund. State currently has about Rs. 480 crores with only 1.6 lakhs people registered. As per the GoI directions 20% of the cess collected in each year is to be utilized for Skill Development. Rs. 90-100 crore of this fund may be used for training construction workers and their dependents since the scope of this fund allows for skill development of the target group in any field. The state needs to both increase the collection of cess and registration of workers so that the benefits of this can reach out to the maximum number of worker.

(g) Handloom Department

Under the Integrated Skill Development Scheme, Ministry of Textiles, about ___ people can be trained from Punjab given that the State accounts for ___% of the Nation's employment in that sector. However, no trainings have been imparted till now.

(h) Tourism Department

Tourism is an important sector in Punjab. Skilling in this sector demands attention due to its demand and opportunity to provide employment. The Hunar Se Rozgar (HSR) scheme of Ministry of Tourism has a national target for training 54,000 candidates in the country in FY 2012-13. Punjab can target 5% of this. Further, State can facilitate trainings by tie-ups with hotels, etc.

(i) Department of Industries

This Department is currently not running any training on core skill development. There are a few trainings conducted in Entrepreneurship Development Programme. This department has a potential for providing quality trainings in market relevant trades through its various MSME Development Institutes in Punjab. Vacant and underutilized infrastructure may be utilized for imparting trainings.

(j) Food Processing, Agriculture and allied sectors

Food processing, Agriculture, pisci-culture, dairy and other allied activities are very relevant and important sectors of the Punjab economy. These departments currently run very short duration courses lasting no more than a week. Trainings and skills are essential in these areas and there is scope to update and make the courses more comprehensive and employable.

(k) Employment Generation and Training

Under SDI scheme, the EGT Deptt provided training to about 12,000 candidates. Out of which 8755 were placed. During first two years o 12th five plan the Deptt trained about 9550 candidates, out of which 2660 had been placed. Centre for Punjab Youth Training is providing training to youth for enrollment in Defense forces and Para military forces. Every year, about 10,000 youth are trained by _____ centres across the State every year.

(m)Others

Further, the Skill up-gradation Training Programme for Women (SUTP) and Skill Development Training Programme (SDTP) under Ministry of Youth Affairs and Sports has a potential to provide trainings to 6,000 women and 1,000 youth in Punjab respectively, if the courses and trainings have a formal structure ensuring quality.

Overall, various departments have been able to provide **skill development training to _____ youth every year** under various central schemes and excepting trainings under NRLM other trainings were not linked directly to employment.

10.6 Constraints / Challenges in Skill Development in the State

The above details disclose that the current skill development infrastructure and programmes are inadequate to address the challenge of skilling the youth of the state in desired numbers and of right quality. The Key issues that bedevil this sector, as noted from the previous discussion are summarized below:

- (a) Limited (and unevenly dispersed) Capacity of Vocational Training Institutions: More than 5 lakh candidates compete for the 60,000 seats in 384 ITIs. For diploma education in technical subjects, there are approx 53000 seats available annually for which more than 3 Lakh students compete. Even this limited capacity is not dispersed evenly and not being fully utilized due to reasons of quality, access and affordability. The current formal (long term and regular) and short duration skill development infrastructure is able to provide technical/ vocational trainings to approx. 1 lakh youth in the state and that too without any links with placements. The state needs to gear its policies, facilities and programmes to cater to an annual skilling target of 5-6 lakh youth which would not be possible with the current arrangements.
- (b) Indifferent Quality of Vocational Training leading to poor employability: The programmes in ITIs and Polytechnics have not kept pace with the changing requirements of the industry. Most of the ITIs are providing training with tools and equipment which have become obsolete; there are no institutional arrangements for regular updation of the training curriculum of ITIs and Polytechnics and both the ITIs and polytechnics are suffering from a severe shortage of trainers. As a result even the limited number of students who graduate from ITIs and Polytechnics fail to get proper employment. Although, hard data is not available, which in itself is a serious shortcoming, anecdotal evidence suggests that less than 30% of the graduates of these institutions find proper placement.
- (c) Data Insufficiency: The vocational education and training sector suffers from a severe crisis of good evidence / data base for proper planning and policy making. No scientific skill gap study is available to guide reformulation of courses. There are no

data bases available of youth willing to undergo skill based trainings. The absence of reliable placement data also hinders youth in making informed choices about the kind of training they would prefer. The institutions do not have any information about the needs of the employers for specific skills and of the graduates once they pass out. Even a functional Labour Market Information system (LMIS) does not exist. Absence of data severely affects the quality of the decision making in regards to vocational education in the state.

- (d) Lack of Integration of skill development efforts of various Departments: Several departments such as Rural Development, Urban Development, Welfare and Food Processing offer skill development trainings under central and state schemes. However, there is no coordination amongst the departments or sharing of information and most of these programmes are not placement linked. This, on one hand, may result in fictitious reporting and on the other the state fails to take advantage of the economies of scale that could have been realized by way of standardization of courses, accreditation of large professional training providers at reasonable costs and setting up of a professional body for overall planning and monitoring of skill development efforts.
- (e) Societal Acceptance of Vocational Training: The vocational training programmes such as those offered by the ITIs are still not a preferred option due to the norms and values of the society where a white collared job is seen as superior to a blue collared one. As a result, there is a class divide. Youth from better off families would prefer to enroll for degree programmes in general courses rather than go for a vocational programme after class Xth or XIIth. This is a serious attitudinal issue and without any concerted communication effort this will be a barrier to successful adoption of skill based education and training by the society at large.
- (f) Employer-Trainer-Trainee Linkages either absent or weak: There are no institutional mechanisms for incorporating the needs and views of the employers to update /upgrade course offerings or change in syllabus. The trainers hardly ever interact with the employers for upgrading their own skills and employers do not offer their resources for improving the content and quality of vocational training. There is no forum where prospective or current trainees get to interact with the employers and trainers together to make good choices based upon their aptitude and industry

requirement. As a result, even after acquiring the diploma or the certificate trainees do not get suitable employment which further erodes the credibility of the vocational training courses and their acceptability.

- (g) School-Student-Institute Linkages are totally absent:- The quality of the output of the Vocational Training system depends to a large extent on the quality of the trainees taking admissions in the ITIs/VTPs etc. That is on the out put of the School system. There is no structure or institutional mechanism for incorporating the needs and views of the Vocational Training Institutes about the deficiencies being noticed by them in the trainees while imparting Vocational Training/Skill Development to them. The basic numeracy, communication and comprehension skills which are the foundation on which the Institutes are to build the plate form of Skills is often missing in the Trainees. The quality of the education imparted by the school system is responsible for this. A dynamic interactive mechanism between Schools-Student-Institute is required to address this issue.

10.7 A comprehensive Skill Development Strategy along with organization and implementation mechanisms needs to be put in place to address these challenges / constraints.

Chapter 11

Formulation of Skill Development Strategy for the State

A comprehensive and long term strategy for skill development is required to be drafted in the context of the national strategy, the skilling targets expected to be achieved by the state during 12th plan (11.6 lakh) and current status of the skill development activities in the state.

11.1 Consultation with the relevant Departments

This strategy will be developed following a detailed consultative process. Information on skill development schemes has been/is being collected from all the relevant Departments. Thereafter, meetings and discussions will be held with officials from Department of Labour, Urban Department, Rural Department, Planning, Social Security, Welfare Department, Industries & commerce, Employment Generation, Health & Family Welfare and Finance etc..

The key issues, indicative but not exhaustive, that will be deliberated during these meetings included

- (a) how to engage with different kinds of training providers- Private, Government, PPP, NGO etc
- (b) How to ensure convergence by bringing all trainings done by different departments under one umbrella
- (c) How to dovetail all the funds allocated to different departments
- (d) Different steps and measure to be taken while engaging with private training providers
- (e) How to ensure post placement tracking and how to avoid duplication of beneficiaries, misuse of funds etc
- (f) How to make best use of the given resources and
- (g) How to ensure application of the **Available of Funds** to Skill Development in most judicious manner.

11.2 Learning from other States

Also field visits will be made to the states of where good work has already been done like Andhra Pradesh, Rajasthan, Gujarat, Uttar Pradesh and Karnataka to understand the organization and methods adopted for skill development programmes in these states and to learn from good practices being followed there. In this context, information on skill

development of some states Andhra Pradesh, Rajasthan, Gujarat, Uttar Pradesh and Karnataka Chattisgarh is also available from the internet is also being analysed. The key learning from this analysis is listed below:

- There should be an umbrella organization to coordinate the entire skill development activities. This organization should be strong enough to develop and decide the overall policy framework and get it implemented through different departments. There should be strong mechanism to integrate different departments and to coordinate their efforts. Andhra Pradesh has formed REEMAP as the apex organization for this purpose. In Odisha, a separate department has been created for all skill development activities. All Departments having any kind of funds for skill development transfer these funds to this department and it implements the programs.
- There should be strong institutional arrangements to implement the programs both at state level and district level in form of **Project/Program Implementation /Management Units**. Andhra Pradesh has created a Program Implementation Unit within REEMAP at state level. They have also created District Level Committees to implement and monitor the programs. In Andhra Pradesh, EGMM is in operation since 2004 which has a large pool of human resources at district, sub district and cluster level. EGMM structure has not only helped them in creating awareness and mobilization but also proved an effective monitoring agency. In Rajasthan, RSLDC has created a strong PIU at state level and they have also formed district level committee under District Magistrates. These committees will also be supported by a Technical Consultant.
- The entire program should be a broad based program. It should cover all the stakeholders. The demand for skilling in comparison to existing Government infrastructure is very high hence involvement of private training partners is must but, at the same time, it is required to upgrade and enhance the existing facilities like ITIs/ITCs. Sectors with potentially large demand of skilled manpower should be identified and courses should be planned to meet the demand in those sectors. Active participation of industry should be ensured to assess the market demands. In Gujarat, ITIs have entered into Flexi-MOUs with industries to provide market oriented trainings with high employability. Similarly, they have also

started superior technology courses to meet the demand in the emerging sectors of the industry. In order to provide self employment based trainings, they have set up Kaushalya Vardhan Kendras in rural and semi urban areas.

- The Skill development program should be linked to employment. Arrangements should also be made for Placement counseling services, tracking of trainees even after placement and post placement services.(Andhra Pradesh)
- There should be dynamic updation of data on skill gaps and the courses and their content should be upgraded, accordingly. (Andhra Pradesh)
- The Private training partners should be engaged through a competitive process so that only quality players are engaged. (Andhra Pradesh and Rajasthan)
- There is a tendency among the private training partners to take only soft skill based program because initial investments in such courses is very low. The market for such skills is only at big urban centres. Hence, the candidate has to migrate from their place to urban centres. The initial salaries are not very high – normally in the range of 4000 to 6000 Rs per month. With high cost of living in urban centres and low initial salaries the attrition rate is very high. There should be some mechanism to have wide ranges of courses in both hard and soft skills. (Andhra Pradesh and Rajasthan)
- Sub standard quality of franchisees of main training providers is a cause of concern. Strict quality control systems are required. In order to check malpractices, Rajasthan and Andhra Pradesh are using bio metric system based attendance as one of the solutions.
- Social Mobilization needs to be done in a planned manner for dissemination of information and counseling of youth. In addition to face to face interactions, communication channels like print media, electronic media, and localized publicity through traditional means should be used. (Gujarat, Rajasthan, Andhra Pradesh)
- Community participation should be ensured especially for self employment based programs. Nature of courses and content should also be discussed with community to increase the acceptability of the program. (Gujarat)
- Residential programs for trainees living far from the training centres result in better quality of training programs and improved participation of candidates. It

also helps to build the mindset of the candidates, in case they have to migrate from rural to urban centres for jobs. (Rajasthan and Andhra Pradesh)

- Government infrastructure may be offered to private training providers for running their programmes. This will not only bring down the costs and expedite setting up of centres, often training programmes run in government buildings have more credibility. In Gujarat, KVKs are being operated either from Government buildings or from rented buildings owned by managements.
- Sound monitoring mechanism, ideally IT based, is required to check irregularities especially with private training partners run programs. Rajasthan has engaged Accenture to monitor the private training partners and to provide feedback on the quality and content of the training programs.
- There should be a strong body for certification, standardization and accreditation. Active support can be taken from the market leaders for certification of courses to have better credibility of the courses. Gujarat Council for Vocational Training(GCVT) in Gujarat has engaged industries like Kirloskar, Eicher Motors to give joint certificates. Similarly, Karnataka has also engaged CISCO systems to provide certificates.
- There should be separate budget allocation for the umbrella organization to carry forward the activities. As of now, most of the states are relying on state budgets only. The funds from SDI scheme and other central schemes have not been used in a significant manner. Only, Andhra Pradesh has been able to utilize central schemes fund.

11.3 Discussions with other Stakeholders including Training Providers

Discussions were held on several occasions with NSDA which helped us obtain the national perspective on skill development efforts. Meetings were also held with major training providers like IL&FS, and Ernst & Young to understand how these organizations have been working in different states and what best practices can be adopted to build a strong system. The best way to engage with large training providers, the bidding process, role of training providers in mobilization, decision on courses to be imparted and their curriculum, etc were also discussed in great detail.

Further, interactions were held with organizations like GIZ, IISD and India CAN as these are providing trainings in various sectors across various states under different scheme of the central govt.

Discussions were also held with DGET, Government of India to discuss the possibility of increasing the quality of trainings provided through VTPs under the SDI-MES schemes by using other funds to pay for the higher cost of trainings. The issue of integrating efforts of NRLM with the Skill development mission was discussed with the officers of NRLM who was in principle agreed with the concept of an integrated approach and also that the staff being supported at the state and block level for placement linked trainings under NRLM may be appropriately used for the Skill development activities in a optimum manner.

11.4 Key Design Principles

Based on these discussions and analysis of data following principles have been finalized for designing the State Skill Development Mission:

- More than 5 lakh youth enter the labour force every year in the state without proper skills. In addition, there is a back log of more than 50 Lakhs. The State Rural Livelihood Mission is already engaged in enabling livelihood options to a large numbers through self employment and SHGs, irrespective of age and literacy levels. Therefore, **State Skill Development Mission would focus on providing wage employment linked skills and training** to children who drop out of the education stream between class 5th and 12th, who number approximately 8 lakh per year, with more emphasis on youth who have qualified class 8th as they can be trained in many more sector thus enhancing their employability.
- There should be a **comprehensive Mission for all skill development activities in the state** in order to have integration of different departments, convergence of financial resources, optimal use of available physical infrastructure, laying down common guidelines, providing single window/stop solution to all stakeholders, engaging private partners and collaborating with the industry and market.
- The mission shall strive for **standardization of syllabus** and monitoring systems across all schemes and departments to reap economies of scale and scope.
- A **common database** of all candidates, employers, placements, training facilities, inspection reports will be developed and shared with all the stakeholders.

- **Convergence of all physical and finance resources** available under various central and state schemes for skill development will be a key to the design. This will facilitate preparation of a comprehensive plan and bringing in uniformity in courses and their costs.
- Given the constraints in government systems, mission will need **to work closely with professional private sector partners** to train the large numbers that is mandated for the mission.
- The systems should be designed to provide for flexibility in entering into innovative partnerships with industries.
- **IT enabled online systems** to be put in place for transparency, speed of decision making and networking of all stakeholders. This system will also provide relevant data and information to all other stakeholders.
- The State Program Management Unit (SPMU) and District Program Management Unit (DPMU) **will need to be provided professionals** who have experience in the field of skill development.
- The mission should have broad based structures to enable participation of all relevant stakeholders (employers, educators and beneficiaries) in planning and monitoring. Representatives from industry and academia will need to be incorporated in the governing council and state steering committee of the mission. Other institutional mechanism will need to be set up for continuous updation of the knowledge base.

11.5 The strategy for the Mission and its organization will be recommended keeping these principles in View.

Chapter 12

Punjab State Skill Development Mission

Vision, Mission and Key Strategies

12.1 It is important that this important programme has a well articulated mission and Vision so that efforts of all the participating departments, organizations and other stakeholders are aligned.

12.2 Vision

To provide all the persons of the state, who could not pursue formal general education after class 5th,

- i) an access to acquire skills that are relevant to the employers, at a reasonable cost and within reasonable distance from their residence;*
- ii) the facility to obtain professional counselling in making good choices based upon their interest and aptitude and also employment potential of the skill and*
- iii) help/facility in obtaining placement after acquiring certification.*

12.3 Mission

The Mission of the programme would be:

“To integrate efforts of various departments of the State and Central Government organizations engaged in providing skill development/vocational training and make available employment oriented and placement linked training in vocational skills to the youth in the age group of 14+ by partnering with government and private training providers, while ensuring equitable access to the most disadvantaged, including women; and strive for placement of preferably at least 70% of the trained youth in gainful wage and self employment to enable them to contribute to the economic development of the State.”

12.4 Definition of Skill Development

To ensure that the skill development activities are able to make a perceptible difference in the capabilities of the target beneficiaries, **all trainings under Punjab State Skill Development Mission shall fulfill the following norms:**

- Last for a duration of at least **3 months or 300 hours**(240 hours core skilling, and 60 hours of life skills which include life management skills, functional English, and functional IT Skills)
- Which lead to **wage-employment/self-employment of preferably at least 70%** of the beneficiaries in the training batch, and

- The **incremental monthly earning of trainee should preferably be at least 33.3%** of the cost incurred in the skill development training.

While the focus of the skill development effort would be wage employment, it is felt that there is ample some scope for self employment also. This is necessary on two counts. First, the wage employment opportunities may not grow apace with the training output and second there are certain trainings that are oriented towards self employment. For example, courses like electrical repairs, AC repair lead to many more self employment avenues than salaried ones while courses like CNC machine operators are mostly salaried employees.

To ensure the above, **payment to training providers shall be linked to placement**. Although, the focus shall be on wage employment, a certain percentage may be placed in self employment occupations also. The payment conditions will be finalized at the RFP stage and will be approved by the State Steering Committee. Post-placement tracking of all employed and self employed trainees shall also be done by the training providers.

As the technology is changing very fast and the persons working in the formal and informal sector were trained many decades ago, so to keep pace with the technological changes and also to retain the experienced talent already skilled in the respective areas, re-skilling is also included in the programme.

12.5 Target Group for Skilling and Reskilling

a) All persons between the ages of 14 to 35, preferably 8th pass, who need skill development training to get a decent job and or improve their earning capacities and level, shall be eligible for the skill development training. People who are 5th pass and above will also be considered for courses which have a lesser eligibility requirement. Skill development will also be extended to unskilled/semi-skilled workers seeking to enhance their skill levels.

Within this group, the emphasis will be on those who come from marginalized and vulnerable sections of society, and those who need short duration skill development courses to be able to take advantage of entry level positions in all sectors of the economy. Reservation and special provisions shall be made for the vulnerable sections of the society.

Persons passing out from ITIs/ITCs and polytechnics will also be eligible for skill development training if the same is required to make them employable. The program shall target Women, SCs, and other marginalized sections of society. The specific provisions for different categories of people in schemes such as NRLM, MSDP, BOCW, BADP, SCA to SCSP etc. shall be adhered to. The funds available under these schemes will not only be used for skill development but also for setting up infrastructure for trainings for these groups. Overall, the program shall have a target of 30% for women, 25% for SCs, 3% for differently abled and 2% for minorities across all the trainings provided in the state through the Mission.

12.6 Key Strategies

(a) Creating a System Integrator

- The State Government shall set up a comprehensive body that shall link skill development in a sustained manner, across various Sectors and Departments of the State Government. This body will be known as Punjab State Skill Development Mission (PSSDM)
- This Mission shall help achieve economies of scale in cost of trainings and other procedures and shall help achieve uniformity of standards as well as a robust accreditation system.
- PSSDM will prepare a State Skill development Program, drawing upon all resources that may be available in any department and under any central/state scheme for the purpose, and will implement this program in consultation with and collaboration of all the concerned departments, in an integrated manner.

(b) Up-gradation and Up-scaling of Government ITI/ITCs/

- Establishing more Government/ private ITIs and VTPs and increasing capacity of existing institutes and to address geographical disparities.
- Setting up of Skill Development Centres in the remote and/or un-serviced and/or underserviced areas of the state.
- Improvement of training infrastructure in Government Institutes through filling up vacant positions of instructors/trainers in Government run ITIs, regular review of the functioning of Institute Management Committees (IMCs) of ITIs under the PPP scheme, and rationalisation of courses in Government run ITIs.

- Courses shall be reviewed to remove redundant programmes and to introduce courses in sectors which have high demand for skilled labour and are growing at a fast pace in the state.
- Training Career Counselling Placement and Tracking cells shall be set up in Govt. and Pvt. ITIs.

(c) Engaging with Private Sector

- The existing government and private infrastructure of ITIs and Private ITIs is not capable of providing skill training to 9 lakh youth every year, which is the target. Therefore, engaging with private sector Training Providers through a well designed PPP strategy will be the key strategy.
- A well designed PPP policy will be the key to the success of the programme. The policy will enable long term partnerships (3 to 4 years) with reputed Private Training Providers who shall be empanelled on the basis of technical qualifications and shall be paid notified training costs linked to placement. The method of empanelment, assignment to districts and allocation of courses to Training Providers will be made following a transparent methodology that should achieve the objectives of enabling economies of scale for the provider, benefitting from the specialisation of providers in specific sectors and wider choice to the State. Course curriculum, if not available from the Apex National Bodies, for these trainings shall be prepared in collaboration with employers and academicians to ensure that.
- The private Training Providers shall be expected to collaborate with the district teams in mobilization of youth and in finalizing the district skilling plans. The Government infrastructure will also be made available to them at prescribed fee for speedier implementation as per a well laid out guidelines. They shall be paid a pre-notified training fee linked to the placements and will also be expected to provide post placement support to trainees.
- In addition to the long term contracts, the mission will provide flexibility in entering into MOUs with industry partners and professional councils such as ICAI for providing skill training in specified sectors.

(d) Persuading NSDC to enhance their contribution to state skilling efforts

- At present training is provided through some NSDC centres in the state but their contribution is not much annually as compared to NSDC's overall achievement in the country. The NSDC will be persuaded to ensure that there is a significant increase in this number.

(e) Addressing the needs of Vulnerable Groups -Special Programs

- The program will have specific targets for Women, SCs, differently abled and Minorities in all trainings provided under the Mission.
- Residential accommodation/ Hostels shall be arranged at all key areas for skilling and training in the state. Special provision for women accommodation shall also be made to encourage women trainees.
- The cost of trainings/ accommodation shall be further subsidised for people from vulnerable groups like Women, SCs, differently abled and Minorities.

(f)Special Schemes for Focus Sectors

- Special schemes will be designed for training in certain focus sectors such as Construction, Retail Marketing, Banking, Accounting, Security, IT / ITeS, Food processing, Automobile, Fabrication(Welding) etc, which have good employment potential in the state. This may include developing partnerships with organizations such as CIDC, NAC and L&T etc for setting up specialised centres for skilling for construction trades, Maruti Suzuki, Tata, Mahindra and Mahindra and other Automobile majors in Automobile Sector, and with IT majors such as Microsoft, Infosys, HCL etc for the IT sector. Other sectors like Food Processing and Non Conventional Energy Sources (Bio Mass Based, Solar) would also be given special attention.

(g)Financing Skill Development Trainings

- Mission will contract with the private Training Providers. After mobilization and preparation of data base of candidates and based on the choice of candidates and employment opportunities District Training plans would be finalized.
- Nominations of candidates for training courses shall be made following a transparent methodology and trainees will be allocated to schemes / departments keeping in view the conditions for eligibility, targets and funds availability under various schemes.

- The concerned Department shall transfer the training fee for each batch of nomination to PSSDM. In certain schemes, the funds available for a trainee / training may be less than the notified training costs. The gap would be bridged by the mission through state Skill Development Funds.
- The payment to the training provider shall be released through PSSDM as per contract terms.
- PSSDM will submit utilization certificates to Departments as per the requirements of the scheme.

(h) Reaching out to community through a Dynamic Social Mobilization Campaign

- The DPMU shall act as facilitation centre at the District level for guidance, counselling and any other help regarding training and registration.
- PSSDM shall undertake an annual mobilisation drive across all districts to register students for training. This shall be done under the supervision of the District Level Committee in collaboration with private Training Providers.
- In addition, publicity campaigns will be launched using all media such as print, electronic, internet, and traditional means of communication.
- A dynamic website of PSSDM shall be maintained for one stop/single window solution for providing information to all stakeholders.

(i) Creating large pool of trainers

- To address the problem of paucity of good trainers, there shall be institutional arrangements for up-gradation of the knowledge and skills of the existing trainers and also producing a large pool of new trainers in various sectors. **Collaboration will be had with the private sector for training of trainers.**
- The state shall set up a Vocational Training Research and Development Centre. It shall be made functional.

(j) Comprehensive Data Management and Management Information System (MIS)

- A comprehensive IT portal shall be set up by the mission that will host the database of all potential trainees and details of all students of Govt. and Pvt. ITIs and other training institutions.
- Nomination of candidates for various trainings, placement tracking and post placement follow up will be made through this common database. This database shall also be shared with employers.

- All interactions with the private training providers and with government departments shall be made through transparent on-line systems.

(k)Employment Tracking and Post Placement Support Services

- There shall be in built mechanism for all programs to have post placement tracking. This will help in enhancing the sustainability of employment.
- Once mission is stabilized it will also set up systems to help and advise the trainees where employment leads to migration and overseas employment. This will include helping the new trainees settle down in new environment by assisting them in locating hostels, and in obtaining identity cards, PAN Nos, ESI/EPF services, bank accounts etc.

(l)Course standardization, certification and accreditation

- An institutional mechanism will be set up to standardize courses in consultation with the employers, training providers and academia.
- Certification should be an integral part of all trainings. Specialized agencies, industries can be roped in for certification. SCVT needs to be strengthened so that it can ensure uniformity in syllabus and provide certification in collaboration with specific agencies and industries.
- Systems for Accreditation of training partners and training institutions shall be put in place.

(m) Keeping Strict Vigil - Effective Monitoring System

- Bio-metric attendance system shall be implemented at all training facilities to maintain discipline.
- Effective monitoring through district level committees and DPMUs.
- Third party evaluation shall be conducted to assess the performance and outcome of the activities.

(n)Assessing Market Dynamics- Skill Gap Study and Research activities

- To have more focused and better planned training programs skill gap studies shall be conducted..
- Research shall be conducted through professional agencies to bridge the gaps among trainers, employers and trainees.

(o)Exploring New Horizons-Overseas employment

- Overseas employment opportunities shall be tapped by developing focused arrangements for the same, including coordination with recruitment agencies.

(p)Strengthening Apprenticeship Programme

- The Department of Technical Education and Industrial Training, in consultation with the PSSDM will formulate and plan on means to increase the current number of Apprentices in the State
- Collaborations will be made with industries and large companies of the State for increasing number of trainees under the scheme.

Chapter 13

Organization Structure of Punjab State Skill Development Mission (PSSDM)

13.1 Organization of PSSDM

The PSSDM will be set up having a General Body, Governing Council, State Steering Committee and State and District level Executive Committees. State level Program/Project Management Unit (SPMU) and District Level Program/Project Management Units (DPMU) will support the State and District level Executive Committees, respectively. In addition, a Course and Training Fee Standardisation committee will be set at the state level and a Technical Consultant (TC) will be hired to assist the SPMU in the initial period. In the following paragraphs the roles, responsibilities and functions of these units have been detailed. The PSSDM will be set up, as a society in the beginning, which may be converted in to a statutory body subsequently through an Act.

13.2 Governing Council

13.2.1 Composition

The Governing Council shall be the Apex decision making body, and shall be responsible for approving the broad vision and framework for skill development in the state and long term objectives and goals for the mission. The Governing Council shall meet at least once every six months. The Governing Council of the society shall have following members:

Hon Chief Minister	Chairman
Minister in Charge of Technical Education and Industrial Training	Member
Minister, Housing and Urban Development	Member
Minister, Food Processing Industries	Member
Minister, Rural Development and Panchayats	Member
Minister, Labour and Employment Department	Member
Minister, Social Security, Women and Child Dev.	Member
Minister, Welfare of SC and BC	Member

Minister, Industries & Commerce	Member
Minister, Tourism	Member
Vice Chairman Planning Board.	Member
Chief Secretary	Member
Financial Commissioner Development	Member
Principal Secretary Industries & Commerce	Member
Principal Secretary Rural Development and Panchayats	Member
Principal Secretary Finance	Member
Principal Secretary Planning	Member
Principal Secretary Housing & Urban Development	Member
Principal Secretary Social Security	Member
Principal Secretary Welfare of SC and BC	Member
Principal Secretary Labour	Member
Principal Secretary Food Processing Industries	Member
Principal Secretary, Employment Generation	Member
Representatives from Industry to be nominated by Government (for three years)	Five Members
Skill Dev. Experts to be nominated by Government (for three years)	Two Members
MD and CEO, NSDC	Member
Principal Secretary Technical Education & Industrial Training	Member Secretary

Chairman may nominate any person as special invitee in the meetings of the Council.

To begin with the initial Governing Council will constitute the General Body of the Society. More members shall be added later on with the approval of the Governing Council. The General Body shall meet at least once in a year.

13.2.2 Function of the Governing Council

- (1) To provide guidance, support and overall policy direction to Skill Development Mission of the state.
- (2) To consider State Annual Action Plan for Skill Development.

- (3) To review progress of Skill Development Plan once in six months.
- (4) To consider the Audited accounts of previous year.
- (5) To consider the annual report of the Skill Development Mission.
- (6) Any other matter that is referred to it by the State Steering Committee.

13.3 State Steering Committee

13.3.1 Composition

The mission shall have a Steering Committee. The State Steering Committee will be responsible for laying down the policies, guidelines, regulations and rules for the mission under the overall guidance of Governing Council and will be fully empowered to take all financial and administrative decisions for the Mission. The Steering Committee shall meet once in every three months. The Steering Committee shall have following members:

Chief Secretary	Chairman
Principal Secretary Industries & Commerce	Member
Financial Commissioner Development	
Principal Secretary Technical Education & Industrial Training	Member
Principal Secretary Rural Development Panchayati Raj	Member
Principal Secretary Finance	Member
Principal Secretary Planning	Member
Principal Secretary Urban Development	Member
Principal Secretary Social Security	Member
Principal Secretary Welfare of SC & BC	Member
Principal Secretary Labour	Member
Principal Secretary Health	Member
Principal Secretary IT	Member
Principal Secretary Health & Family Welfare	Member
Principal Secretary Food Processing Industries	Member

Representative from NSDC	Member
Representatives from Industry to be nominated by Govt.	Five Members
Skill Dev. Experts to be nominated by Government (for three years)	Two Members
Mission Director, Skill Development Mission	Member Secretary

Chairman may nominate any other person as special invitee in the meeting of the Steering Committee.

13.3.2 Functions of State Steering Committee

- (1) To frame policies, guidelines, regulations and rules for the mission.
- (2) To approve guidelines for functioning of PSSDM like engaging private partners, recruitment rules, purchase rules etc.
- (3) To approve delegation of administrative and financial powers at various levels.
- (4) To approve Annual Action Plan of the state.
- (5) To approve budgets of PSSDM.
- (6) To approve communication and social mobilization strategy.
- (7) To approve the recruitments for the mission as prescribed in the rules.
- (8) To approve procurement of services beyond amount Rs. 50 lakhs.
- (9) To facilitate inter-departmental coordination.
- (10) To appoint sub committees for addressing specific issues.
- (11) To periodically review the progress of PSSDM.
- (12) Any other matter referred by the State Executive Committee.

13.4 State Executive Committee(SEC)

13.4.1 Composition

The mission shall have an Executive Committee. The Executive Committee shall be responsible for implementation and monitoring of all activities of the mission as prescribed by the state steering committee. The executive committee shall meet at least once every month. The executive committee shall have following members:

Principal Secretary, Technical Education & Industrial Training	Chairman
Representative of Principal Secretary, Finance (Not below the level of Additional Secretary)	Member
Commissioner, Labour	Member
Director, Rural Development	Member
Director Industries & Commerce	Member
Director, Employment Gen. and Training	Member
Director, Health & Family Welfare	Member
Director, SUDA / Mission Director, SULM	Member
Mission Director, SRLM	Member
Director, Social Security	Member
Director, Welfare of SC & BC	Member
Mission Director, Skill Development Mission	Member
	Secretary

13.4.2 Functions of State Executive Committee

The Executive Committee shall have the responsibilities in respect of the following:

- (1) To review the district action plans and finalize Annual Action plan for the State
- (2) To consider and approve the recommendations of the Course and Fee Standardisation Committee and finalize the courses, syllabus and training fee and other arrangements for running these courses.
- (3) To finalize the RFP /RFQ for engaging private sector training providers and after seeking approval of the competent authority, engage private sector training providers and enter into contracts with them.
- (4) To finalize and seek approval of the State Steering Committee on the Process Guidelines for implementing the skill development programme/Mission.
- (5) To review the progress of implementation of the approved action plan at least quarterly.
- (6) To approve registration of training organisations as VTP under the SDI scheme through PSSD Society.

- (7) To supervise the functioning of the District Executive Committees, SPMU and the DPMUs.
- (8) To exercise administrative and financial powers as per delegation.
- (9) To finalize innovative Arrangements/Agreements with Industrial units and other private organizations for skill development and seek the approval of the State Steering Committee for signing of MoUs.
- (10) To plan for setting up of skill development centres and for upgradation of infrastructure and seek approval of the State Steering Committee after tying up the financial arrangements.
- (11) To engage with central government training organizations and NSDC for follow up on trainings being imparted by them.
- (12) To approve research and evaluation studies in the area of Skill development.
- (13) To strengthen the institutional infrastructure for skill training and certification.
- (14) Any other work assigned by the Steering committee.

13.5 State Program Management Unit (SPMU)

The SPMU shall be headed by Mission Director, Punjab State Skill Development Mission. He shall be responsible for proper administration of the affairs and funds of the Mission, and implementation of its' various activities and programs in a Mission Mode under the control, directions and guidance of the Chairperson of the Executive Committee. Mission Director shall have following responsibilities:

- (1) Constitute a Mission Task Force, comprising of officers and staff of the Mission, which would work in a Mission Mode for the achievement of the objects of the Society.
- (2) Prescribe the duties of officers and staff of the Mission at state and district level.
- (3) Exercise due supervision and control over the officers and staff of mission at state and district level.
- (4) Coordinate and exercise general control and supervision over the activities of the Mission.

- (5) Conduct meetings of the State Steering Committee and Executive Committee and keep a record of proceedings of the meetings in accordance with these Rules.
- (6) Exercise such financial and administrative powers as delegated by the State Steering Committee from time to time,
- (7) Discharge such other functions as may be assigned to him by the Executive Committee in furtherance of the objects of the Mission.
- (8) Plan, direct, coordinate, organize and supervise day to day work of the Mission.

The SPMU will have following organizational structure:

Additional Mission Director/Chief Executive Officer:- The Mission Director will be assisted by an Additional Mission Director/CEO who will coordinate with all the Cells of the Mission . All the heads of the Cells will report to the Additional Mission Director/CEO and he will report to the Mission Director. Additional Mission Director/CEO shall be from the field of Skill Development and will drawn from the relevant Department.

Finance and Accounts Cell- This cell will be headed by a Chief Accounts officer, assisted by two accounts officers. They shall be responsible for the management of all accounts and financial matters of the mission.

Personnel & Administration Cell - This cell will be headed by a General Manager/Add. CEO, assisted by two other officer. They shall be responsible for general administration and all personnel matters of the employees of mission.

IT & MIS Cell - This cell will be headed by a General Manager/Add. CEO, assisted by two officers. They shall be responsible for Student registry, IT Portal, UPSSDM website, maintenance and updation of data, and performance of all training providers.

Training Partner Collaboration Cell: This cell will be headed by a Manager/ Dy. CEO, assisted by two officers. They shall be responsible for engaging with industry, Government Institutions, Professional bodies, Councils etc. for providing trainings.

SDI Scheme Cell: This cell will be headed by a Manager, assisted by one officer. They will be responsible for setting up VTPs in the state and ensuring quality in training and output under all institutions under the ambit of the scheme.

Social Mobilization and Counselling Cell: This cell will be headed by a Manager/ Dy. CEO, assisted by one officer. They shall be responsible for engaging with and maintaining record of latest vacancies through interaction with employers, counselling and informing students about rising skill demands, right courses for students etc. They shall work with training providers and district units in mobilisation and campaigning.

Course Design, Certification and Accreditation Cell: This cell will be headed by a Manager/ Dy. CEO, assisted by one officer. They shall be responsible for interaction with academicians and industries for designing of updated course curriculum. They shall coordinate with Sector Skill Councils and develop a robust support system for providing relevant and employable skills to the youth. They will also develop a mechanism for certification and accreditation of the courses.

The staffing scheme for SPM detailing the positions, competencies for each position, compensation levels, source of recruitment etc will be decided in due course of time.

13.6 Technical Consultant (TC) for SPMU

A reputed management consultancy organization (having experience of working in the field of livelihoods and skill development at the grass root level) will be hired as technical consultant for the SPMU. The broad functions and roles to be assigned to the TC will include:

- (a) Preparation of EOI/RFQ/RFP and Contract for engaging private sector training providers.
- (b) Assisting the mission in finalization of courses, their syllabus and normative training fees.
- (c) Assisting the Mission in empanelment of training providers as per the approved RFP.
- (d) Developing Process guidelines for implementation of skill development programs as per the broad principles approved by the mission.

- (e) Developing templates for District and State Skill Development plans and training of district teams in preparing their plans.
- (f) Developing an integrated IT system for managing the programme as per the approved process guidelines and support for its implementation.
- (g) Developing monitoring system for the mission activities at various levels.
- (h) Capacity building of the SPMU, DPMU and other staff by organizing training programmes, workshops and conferences.
- (i) Design of Mobilization campaign and communication strategy and assistance in its roll out.
- (j) Designing systems for post placement tracking of trainees.
- (k) Assisting the mission in engaging short term specialists / consultants for undertaking special research studies / surveys etc.

The engagement of TC will be intensive during the first year and will gradually end over next year as soon as the capacities are built within the SPMU.

13.7 Courses and Training Fee Standardisation Committee

A State level committee will be set up to standardize courses in which skill training will be provided through private sector training providers. These will be selected on the basis of employment potential and availability of infrastructure for training. These courses will incorporate MES modules, to the extent possible. The composition of the committee shall be as given below:

- (a) Mission Director, PSSDM
- (b) A representative of SRLM
- (c) Special / Joint Secretary, Finance
- (d) Add. Mission Director/ CEO
- (e) Manager/ Dy. CEO, Course Standardisation, SPMU
- (f) One Expert who has experience with the NCVT courses to be nominated by the SEC.

This committee will form sub groups for each of the skill sector and will nominate at least three experts from academics / industry / training providers in each of the sub group. The recommendations of each of the sub-group will be considered by the committee, which will make its recommendations to the SEC.

13.8 District Executive Committee

13.8.1 Composition

There shall be a District Executive Committee at each district. The committee shall be responsible for preparing district annual plan for skill development and implementing the approved district plan as per the guidelines laid down by the mission. The district level committee shall have following members:

Deputy Commissioner	Chairman
Add. Dy. Commissioner (Development)	Vice Chairman
DPM (NRLM)	Member
District Welfare officer	Member
District CDPO	Member
District Employment Officer	Member
District Assistant Labour Commissioner	Member
Representative of District RUDSETI	Member
Principal Nodal ITI	Member
Principal Nodal Polytechnic	Member
Project Officer, DUDA	Member
District Dev. & Panchayat Officer	Member
GM DIC	Member
Representatives from Industry nominated by the DM	Two members
District Coordinator (PSSDM)	Member Secretary

Chairman may nominate any other person as a special invitee in the meetings of the Committee.

13.8.2 Functions of District Executive Committee

- (1) To prepare District Action Plan for Skill Development
- (2) To coordinate the efforts of different departments in the district.
- (3) To organize campaigns/programs for Awareness Generation and Mobilization of Youth
- (4) To facilitate registration of candidates on IT portal.
- (5) To supervise the training programs conducted by training providers.

- (6) To prepare a list of employment opportunities in the district and nearby areas and its updation on the IT portal periodically.
- (7) To conduct Job Melas on a regular basis
- (8) To organise meetings with local industries once in every three months for seeking feedbacks.
- (9) To review the progress of DPMU every month.
- (10) To facilitate counselling and post placement support services to the candidates.
- (11) Any other work assigned by the State Steering or Executive Committee.

13.9 District Program Management Unit (DPMU)

Each district shall have a District Program Management Unit. This unit will be responsible for overall implementation of the skill development programme in the district including mobilization, registration, data collection, MIS, supervision, inspection and monitoring of the programs and counselling and post placement services in the district on a day to day basis. This unit will be headed by a District Coordinator (PSSDM). The unit will have District Manager Skill & Placement (NRLM) and two counsellors as members.

At the block level, Block Manager (Social Mobilization) and Block manager (Skill and Placement) to be hired under NRLM will work for the skill development mission. In urban areas, Coordinators of SUDS will be co-opted for social mobilization function. The district level unit will function under the direct control of Chief Development officer and general supervision and guidance of Deputy Commissioner. The staffing scheme for DPMU detailing the positions, competencies for each position, compensation levels, source of recruitment etc will be decided in due course of time.