Vocational Education in Secondary Education

Conference of the State Education Secretaries
06.01.2012
Need for Vocationalisation

- Population: 7.27 cr
- Population: 4.84 cr
- Population: 4.86 cr

- No. in Secondary Schools: 60,383 schools
- No. in Higher Secondary Schools: 1,23,265 schools
- No. in Upper Primary Schools: 3,36,638 schools
Status of Skill Development in India

- Age Group 15-29:
  - only 2% have undergone formal vocational training
  - 8% have undergone non-formal vocational training
- 93% of workforce in unorganized sectors
- New entrants to the workforce every year: 12.8m
- Existing Skill Development capacity: 3.1 million
- Target of skilled person by 2022: 500 million
% of Students in Vocational Education

- China: 50%
- Egypt: 30%
- South Korea: 96%
- Denmark: 40%
- Germany: 70%
- India: 5%
“Vocationalisation of Secondary Education”

- Vocational stream 4.8% of HS students
- 10,000 schools funded
- About 10.00 lakh students
- 38.3% pursuing higher studies
- 28% employed/self employed

Scheme launched in 1988 for Cl XI - XII
Goals and Objectives of VE in Schools

- Bridge the gap between demand and supply of skilled workforce
- Enhance employability of the youth
- Establish close synergy with industry at all levels
- To be offered in Classes IX – XII

NVEQF
Salient Features of Revised Scheme

- To be implemented in Classes XI - XII
- Pilots in Haryana and West Bengal in class IX
- Strengthening of 1000 existing vocational education schools
- Establishment of 100 new vocational education schools
- Assistance to run 500 private vocational education schools under PPP mode
- Assistance to 250 NGOs for innovative practices
- In-service training for existing 1000 VE teachers and induction training for 2000 new VE teachers

XI Plan 2011-12
Rs 2000 cr
Rs 25 crore

Contd…
Salient Features of Revised Scheme (contd.)

- Development of 250 competency based modules for each individual vocational course
- It will be mandatory to revise the curriculum once in three years to ensure that it is guided by the needs of the industry
- Setting of a Vocational Education Cell in CBSE
- A strong partnership with the industry/employers in all activities right from selection of courses, curriculum development, teaching processes, resource persons, assessment and certification
- Proposals received from Haryana, Assam and West Bengal
Executive Council for VE

- Minister of Human Resource Development – Chairman
- Minister of State of Human Resource Development
- Secretary (SE&L), MHRD
- Secretary (HE), MHRD
- Secretary, Ministry of Labour and Employment
- Chairman, CBSE
- Joint Director, PSSCIVE
- Chairman, NIOS
- Chairman, UGC
- Chairman, AICTE
- Chairman, IGNOU
- Representatives from Planning Commission and Ministries of Finance, Panchayati Raj, SJ&E, Tribal Affairs, Minority Affairs, RD and MSME
- Representative from NSDC
- State Education Secretaries in rotation for a term of three years
- Joint Secretary (SE I) – Member Secretary
New Courses introduced by CBSE

- Financial Market Management (joint certification with National Stock Exchange)
- Healthcare Sciences
- Mass Media studies and Media Production (Whistling Woods International, Mumbai)
- Hospitality and Tourism (National Council of Hotel Management and Catering Technology, New Delhi)
- Geospatial Technology (Rolta India Ltd, Mumbai)
- Some courses have been revised and made more relevant in today’s context

Vocational Cell established
National Institute of Open Schooling

- Open Basic Education (OBE) Programme for children upto 14 years, adolescents and adults.
- Secondary Education Course
- Senior Secondary Education Course
- Vocational Education courses/Programmes (1313 Accredited Vocational Institutes offering about 80 vocational courses)
- Life Enrichment Programmes
- At present there are about 2264 study centres catering to more than 18.5 lakh students all over the country.
Weaknesses in Existing VE

- Mismatch between demand and supply
- Weak Industry and Job Linkages
- Out-dated courses and inadequate curriculum
- Lack of practical orientation and apprenticeship
- Stigma/ Lack of Motivation
- Financial constraints
- Dead End
- Aspirational links to Higher Education and better jobs unfulfilled
<table>
<thead>
<tr>
<th>NVEQ level</th>
<th>General Qualification</th>
<th>Vocational Qualification</th>
<th>Certifying Body</th>
<th>Vocational Qualification</th>
<th>Certifying Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Doctorates</td>
<td>Degree</td>
<td>University and SSCs</td>
<td>Degree</td>
<td>University and SSCs</td>
</tr>
<tr>
<td>9</td>
<td>Masters</td>
<td>Degree</td>
<td>University and SSCs</td>
<td>Degree</td>
<td>University and SSCs</td>
</tr>
<tr>
<td>8</td>
<td>Post Graduate Certificates, Post Graduate Diplomas and Bachelor Degrees (Honours)</td>
<td>PG Diploma/ Degree</td>
<td>University and SSCs</td>
<td>Degree</td>
<td>University and SSCs</td>
</tr>
<tr>
<td>7</td>
<td>3(^{rd}) yr bachelors</td>
<td>Advanced Diploma</td>
<td>Board of Technical Education and SSCs</td>
<td>Degree and SSCs</td>
<td>University and SSCs</td>
</tr>
<tr>
<td>6</td>
<td>2(^{nd}) yr bachelors</td>
<td>Diploma</td>
<td>Board of Technical Education and SSCs</td>
<td>Grade XII</td>
<td>School and SSCs</td>
</tr>
<tr>
<td>5</td>
<td>1(^{st}) yr bachelors</td>
<td>Diploma</td>
<td>Board of Technical Education / NCVT and SSCs</td>
<td>Grade XI</td>
<td>School and SSCs</td>
</tr>
<tr>
<td>4</td>
<td>Higher Secondary School Grade XII</td>
<td>Diploma</td>
<td>Board of Technical Education / NCVT and SSCs</td>
<td>Grade XII</td>
<td>School and SSCs</td>
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<tr>
<td>3</td>
<td>Higher Secondary School Grade XI</td>
<td>Diploma</td>
<td>Board of Technical Education / NCVT and SSCs</td>
<td>Grade XI</td>
<td>School and SSCs</td>
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<td>2</td>
<td>Secondary School Grade X</td>
<td>Grade X</td>
<td>School and SSCs</td>
<td>Grade X</td>
<td>School and SSCs</td>
</tr>
<tr>
<td>1</td>
<td>Secondary School Grade IX</td>
<td>Grade IX</td>
<td>School and SSCs</td>
<td>Grade IX</td>
<td>School and SSCs</td>
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<tr>
<td>No</td>
<td>Sector</td>
<td>Sector Skill Council</td>
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<td>--------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>1.</td>
<td>Automobile</td>
<td>Automotive Skill Development Council</td>
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<tr>
<td>2.</td>
<td>Security</td>
<td>Security Knowledge and Skill Development Council</td>
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<tr>
<td>3.</td>
<td>Energy</td>
<td>Indian Energy Skill Development Council</td>
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<tr>
<td>4.</td>
<td>Retailing</td>
<td>Retailers Association Skill Council of India</td>
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<tr>
<td>5.</td>
<td>Film, Media, Broadcasting, Entertainment and Animation</td>
<td>Film, Media, Broadcasting, Entertainment and Animation Skill Council</td>
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</tr>
<tr>
<td>6.</td>
<td>Information Technology and IT enabled Services</td>
<td>Information Technology and IT enabled Services Skill Development Council</td>
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</tr>
</tbody>
</table>
NVEQF at Secondary and Higher Secondary Schools

- Development of National Occupation Standards (NOS) for different sectors (NSDC/SSC)
- Development of qualifications and competencies (NSDC/SSC)
- Skill gap analysis to project short / long term demands for various trades and courses to be offered (SSC/States)
- Initial thrust in service / tertiary sectors and sectors needing low investment
- Assessment to be made of requirement of qualified vocational teachers for coming 5-10 years, in conjunction with SSCs
- School advisory committee to be headed by industry
Selection of Schools

- Vocational sections to be established in mainstream schools
- Courses to be based on assessment of skill needs, availability of required resources e.g. industry/business set-up for linkages, teachers/trainers, necessary raw material, electricity, water supply, and the prevailing and emerging employment opportunities
- 2 courses per school
- Model vocational schools to be set up
- Schools to also function as AVI of NIOS
- Linkage of each school with a prominent firm mandatory
Level 1 & 2 (Classes IX – X)

- Qualifications will allow a learner to acquire entry level competencies (basic competencies) needed for “work preparation”
- Prepare students for the work environment, generic competencies, understanding career options and pathways and develop positive attitude towards life, work and further education
<table>
<thead>
<tr>
<th>Group A</th>
<th>Group C</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Maths</td>
</tr>
<tr>
<td>Group B (any 1)</td>
<td>Science</td>
</tr>
<tr>
<td>Hindi</td>
<td>SST</td>
</tr>
<tr>
<td>Sanskrit</td>
<td>Computers</td>
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<tr>
<td>Regional language</td>
<td>Group D</td>
</tr>
<tr>
<td></td>
<td>Vocational elective</td>
</tr>
</tbody>
</table>
Level 3 & 4

- Qualifications will allow a learner to acquire entry level competencies (basic competencies) needed for “transition from an unskilled to a skilled person”
- Learners will be able to acquire vocational qualifications in a particular occupation
- Vocational stream for school drop outs of age 16+
## Scheme of Studies (proposed)
### Levels 3&4 (classes XI-XII)

<table>
<thead>
<tr>
<th>General Education</th>
<th>Vocational Stream</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>Language (2)</td>
</tr>
<tr>
<td>Commerce</td>
<td>General Foundation Course</td>
</tr>
<tr>
<td>Humanities</td>
<td>Vocational courses (1-2)</td>
</tr>
<tr>
<td>Vocational Elective</td>
<td></td>
</tr>
</tbody>
</table>
NVEQF at Undergraduate & Diploma Level

- Seamless transition desired from higher secondary school/diploma level to higher level University degrees
- Course credits to be developed for mobility
- Time frame for completion of course credits to be open ended
- Flexibility to be provided for enrolment and completion of modules in related skill sets at different institutes
- Academic institutes, polytechnics, ITIs, private institutes and also industries with their available infrastructure should become the knowledge providers
- Career-oriented schemes of UGC should be reviewed so as to provide seamless pathways for pass outs of NVEQ 4
Integration of Vocational and General Education

After completion of Class X/XII vocational, student can register with AICTE/NCVT recognized Institute:

- Credits acquired at level 1-4 can be transferred to this Institute / College
- The candidates may enter the job market after each certification level
- OR
  - May continue to acquire additional credits in part time / full time mode in order to complete the requirements of Vocational Diploma or a Vocational Degree
  - Vocational skill credits and the general education credits would be compiled for certification for the appropriate level
Competency Based Modular Curriculum

- To be developed within the NOS and competencies prescribed
- PSSCIVE to develop exemplar curriculum and TLM to be adapted / adopted by School Boards
- To be reviewed every 2-3 years to remain in sync with the changing NOS to meet requirement of and acceptability by industry
- To include soft skills (languages, communication, team work, etc)
- To be developed first for trades with high employability, low investment
- To be vetted by industry especially for the on job practical training
Faculty and Staff

- Vice Principal or Vocational Coordinator in each school
- Master trainers to be drawn from industry/traditional craftsman / professionals
- 1 full time contractual teacher per course and ‘per hour’ guest faculty
- Pre service training - NCTE should revise syllabi to include separate paper on VE in B.Ed. and M.Ed. and expand B.Ed (Voc)
- Induction training – in developing and teaching competency based curricula
- In service training – to upgrade competencies, domain knowledge and skills (PSSCIVE and NITTRs)
- Lifelong learning programmes – web based opportunities
Infrastructure

- Adequate tools, equipment and machinery for the development of soft and basic technical skills to be provided in the schools
- More advanced practical on job training with industry / polytechnic / ITI
- Existing capacities to be leveraged by PPP
- RIEs should be strengthened
Industry Partnership

- Need assessment
- Competency standardization
- Curriculum development
- On-the-job training/internship
- Assessment
- Certification
- Quality assurance
- Practical work and training in commercial and industrial establishments, hospitals, farms, etc
Instructional / training material

- Teacher and trainer guides, practical manuals, workbooks, charts, multi-media packages would be developed by PSSCIVE and made available to all the States/UTs for implementation, contextualization and translation.

- To be based on the competencies laid down by industry for levels 1-4.

- States to take proactive steps to partner with industry.

- IT enabled teaching and learning.

- Simulators.

- Minimum standard can be assured.

- Amenable to distance learning.
Assessment

- Continuous and comprehensive evaluation
- Formative assessment by school
- Summative assessment by Board
- Certified practical examiners
- Semester system
- Student profile and certificate to be used together
- Digital database for credits to be developed in the initial stages to facilitate multiple entry and exit as well as horizontal and vertical mobility (credit accumulation and transfer system). Equivalency of general & vocational courses
- Certification by School Board and industry
Special Groups - equity

- Mainstream SC, ST, OBC, person below poverty line, minority and children with special needs, with special attention to the girls belonging to these groups
- Location of schools in SC/ST/minority areas
- States / UTs to provide appropriate incentives – educational loans, refinancing / recovery from employers
- To be dovetailed with other schemes like IEDSS for children with special needs
- Guidance, counseling, awareness generation
Awareness, Orientation

- Administrators (state level, district level, school heads) of the Departments of Education, Industry and Labour of the State Govt
- Parents
- Industry representatives
- Motivational visits to successful schools / students in other States
- Workshops to give international exposure
Production-cum-Training Centre

- To provide a learning experience linking teaching learning process with the world of work
- Can be established in each school considering the scope of the vocational courses offered in the school
- Suitable linkages with Institutions like Jan Shikshan Sansthan
- Large share of earnings through the PTC may be distributed amongst students as an incentive and support
- Industry should be encouraged to establish and run the PTCs
Apprenticeship Training

- Facilities should be provided for promoting vocational education for levels 3&4.
- Needs to be strengthened through industry partnership, updation of courses and curriculum for improving the employability of the pass outs.
- State Directorate of Vocational Education and District Vocational Education Office should liaise with the BOATs for apprenticeship training of the students.
Monitoring and Evaluation

- National, State, District and Institutional level
- Management Information System (MIS) to be created
- Link with LMIS of NSDC
- Community involvement to be ensured

Two measures of success
- Number of participating schools who offer this vocational programs and number of students enrolled in this option
- Employability of the pass outs
Recognition of Prior Learning (RPL)

NVEQ levels

Recognition of Prior Learning – assessment of Competencies (including literacy & numeracy skills) and certification

Bridge Course (if required) to fill competency gap – NIOS/State Open Schools/IGNOU/State Open Universities

Labour Market
Management Structure

- Bureau of Vocational Education at MHRD
- Vocational Cell in CBSE
- State Coordination Cell for Vocational Education: Depts of Education + Labour + Industry
- State Boards to have a Vice Chairman i/c VE
- Vocational cells in RIEs and SCERTs
- District Vocational Education Office (DVEO)
- RIEs and NITTTRs to be made model teacher training institutions
Private Sector Participation

- Industry, practical on floor training
- Dual model (German)
- Private schools to be encouraged to offer VE
- EWS students’ fees in private schools to be reimbursed subject to accreditation and performance
- Sponsoring of children
- Teacher training
- Incentives – stipend/assured placement
Role of State Governments

• Establish a Coordination Cell for VE – Education + Labour + Industry
• Separate Board of Vocational Education not recommended - vocational cell needs to be created within the State School Boards.
• Mainstream (general) schools should offer vocational courses/ streams to bring vocational education at par with general education.
• Develop an overall TVET strategy for implementation of NVEQF
Role of State Governments

- Develop Institution-Industry interface at local level
- Identify sectors/occupations for RPL
- Policy changes
  - Switch over to credit based semester system – both in General and Vocational Education
  - Changes in higher education system to provide for vocational pass outs of HS schools
  - Modification of recruitment rules in Govt. & Private jobs – emphasis on competencies
<table>
<thead>
<tr>
<th>Year</th>
<th>Activity</th>
<th>Who will do</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-12</td>
<td>Setting up of Sector Skill Councils</td>
<td>NSDC</td>
</tr>
<tr>
<td></td>
<td>Development of NVEQF Operation Manual and Guidelines</td>
<td>AICTE, NCERT, PSSCIVE, NSDC, SSCs</td>
</tr>
<tr>
<td></td>
<td>Development of NOS, CBC, and Training Packages for NVEQ levels 1-4</td>
<td>NSDC, SSCs, NCERT, PSSCIVE</td>
</tr>
<tr>
<td></td>
<td>Setting Up Skill Development Centres (SDCs) in State</td>
<td>State Governments and NSDC</td>
</tr>
<tr>
<td></td>
<td>NVEQF promotion through awareness and training programmes</td>
<td>State Governments, NSDC and Skill Development Centres</td>
</tr>
<tr>
<td></td>
<td>Official Launch and Roll out of pilot of NVEQF in Haryana and West Bengal</td>
<td>MHRD, State Governments NSDC, SSCs</td>
</tr>
</tbody>
</table>
# Time Frame for Implementation

<table>
<thead>
<tr>
<th>Year</th>
<th>Activity</th>
<th>Implementing Entities</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-13</td>
<td>Official launch of NVEQF in other states</td>
<td>MHRD, State Governments, NSDC, SSCs</td>
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<tr>
<td></td>
<td>Publication of success stories and publicity.</td>
<td>NCERT, AICTE</td>
</tr>
<tr>
<td></td>
<td>Development of NOS, CBC, Training Packages for other NVEQ levels for 5-7</td>
<td>NSDC, SSCs, AICTE, UGC</td>
</tr>
<tr>
<td>2013-14</td>
<td>Establishment of NVEQF by other States</td>
<td>MHRD, State Governments, NSDC, SSCs</td>
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<tr>
<td>2014-15</td>
<td>Accreditation of ETPS, Incorporation of NVEQs in recruitment schemes.</td>
<td>AICTE and SSC</td>
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<tr>
<td></td>
<td></td>
<td>Central and State Governments, Industries</td>
</tr>
<tr>
<td>2015-16</td>
<td>Mapping of Indian NVEQs with NVQs of other countries for International recognition</td>
<td>Government of India and Governments of other countries</td>
</tr>
<tr>
<td>No</td>
<td>Activity</td>
<td>Agency</td>
</tr>
<tr>
<td>----</td>
<td>--------------------------------------------------------------------------</td>
<td>------------------------------------------------------</td>
</tr>
<tr>
<td>1.</td>
<td>Set NOS, Competencies</td>
<td>Sector Skills Councils (SSCs)</td>
</tr>
<tr>
<td>2.</td>
<td>Curriculum Design &amp; Development of model TLM</td>
<td>PSSCIVE, School Boards + industry</td>
</tr>
<tr>
<td>3.</td>
<td>Training Material and teacher training</td>
<td>PSSCIVE, NITTTRs, RIEs, SCERTs</td>
</tr>
<tr>
<td>4.</td>
<td>Teaching and Training</td>
<td>Registered Schools</td>
</tr>
<tr>
<td>5.</td>
<td>Assessment &amp; Certification</td>
<td>Awarding bodies (CBSE/State Boards)/NIOS+ SSCs</td>
</tr>
<tr>
<td>7.</td>
<td>Overall Quality Assurance, &amp; Monitoring</td>
<td>School Boards+ SSCs</td>
</tr>
</tbody>
</table>
Expected Outcomes

- Enhanced GER
- Skill formation at an enhanced level
- Enhanced employability
- Supply demand match – local, national, global
- Economic development & poverty alleviation
- Purposeful education