

NFRD Integrated TVET and Supported Entrepreneurship Model: A Case Study for Sustainable and Scalable TVET Delivery in Pakistan

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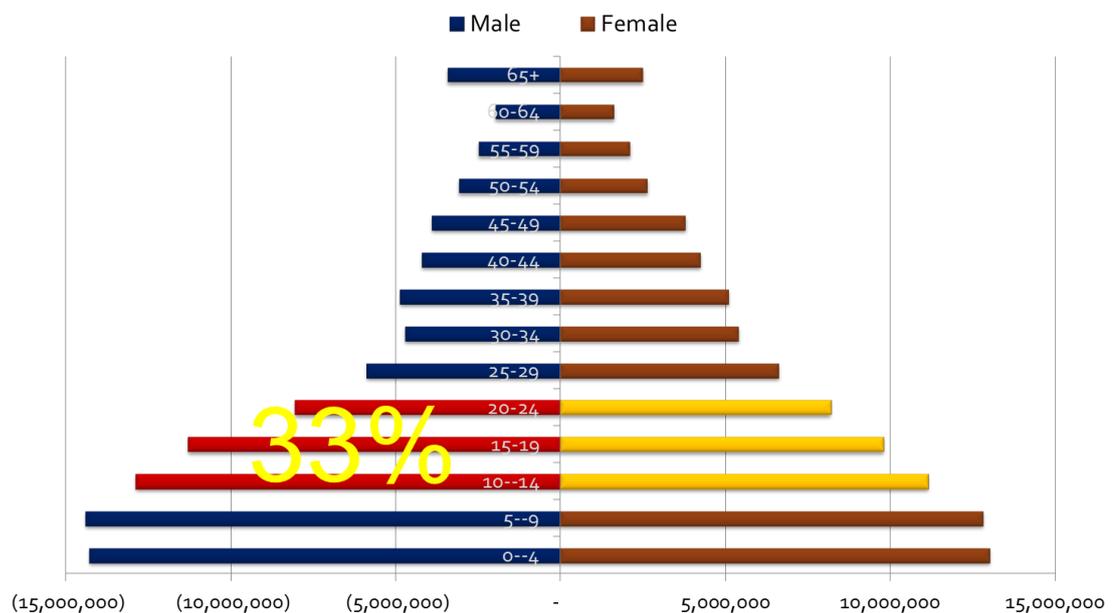
Abstract

Pakistan with over 185 million people has one of the youngest populations with 70% below the age of 30. However the general education system prepares less than 10% of 60 million people in 15-30age group for undergraduate or higher studies and over 90% have no structured avenues for continuing education, training and economic opportunities through skills enhancement and capacity building. Lack of such programs to make them productive members of the society not only results in lost potential but renders such frustrated youth easily recruit-able by anti-social elements. There are only a few technical and vocational training institutions with a capacity of only 1% of the potential eligible trainees. The issue is further complicated by the fact that initial cost of setting up well equipped technical training facilities is prohibitive, the operational costs high and ability or willingness to pay of the target youth extremely limited! The focus of the study is to acknowledge these realities, identify and develop sustainable delivery model for TVET in Pakistan. A literature review of past approaches to address the core issue at National, Regional and International levels indicate that the problem is neither unique to Pakistan nor is specific to developing and under-developed countries. Nations have adopted innovative approaches based on their specific requirements to overcome the known hurdles. Some of these approaches are discussed along with their adaptability to Pakistan. An Innovative experimental approach of Supported Entrepreneurship (SE) being developed by National Foundation for Resource Development (NFRD) and Resource Development Institute (RDI) is presented and the expected results and benefits of the NFRD and

RDI approach are discussed. A proposed framework for sustainable delivery of TVET to target population in Pakistan is presented based on the case study of NFRD and RDI methodology, potential value of creative legal, statutory and budgetary incentives and lessons learned from international and regional initiatives and past attempts within Pakistan. It is indicated that an integrated approach to TVET, industrial linkages, integrated social and electronic media campaign and entrepreneurial opportunities can play a defining role in making TVET an eagerly sought after opportunity by the youth.

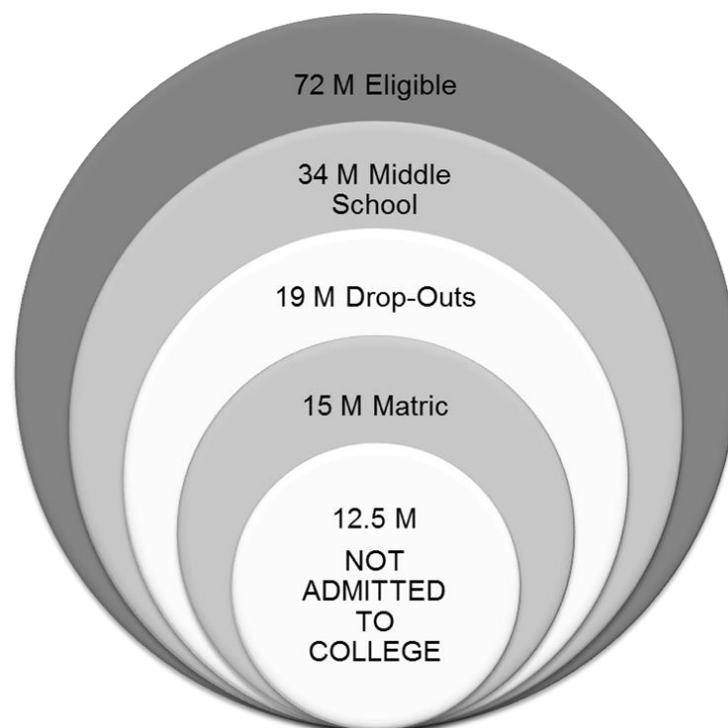
1 TVET Need Analysis

Pakistan is blessed with abundant resources and a young population. Nearly 70% of the population is below 30 years of age. This implies that society can easily support its older population and have substantial fiscal space for development and economic growth if the productive utilization of this population is ensured through strategic planning and allocation of resources. However time is running out as the relentless transition of the population pyramid to a cylinder takes place!



Even if we have 100% enrollment at primary school and middle school and high school level the path to university education will remain restricted to those who excel and stand out from other graduates of high school and who

are likely to benefit the most from university education for long term national strength. The vast majority of high school graduates still have to be prepared as productive and earning members of the society. Today situation is much worse. 100% of the youth under 15 years of age are definitely not on track to even complete high school and of those who do over the next 15 years, only about 2.5 million of the 72 million (just about 3.5%) are likely to be university bound. And even if the efforts in providing more opportunities for college and university education are hugely successful over the next 15 years, the percentage is not likely to increase beyond 300% from 3.5% to 10%. This still means that viable and sustainable opportunities for 90% (65M) youth must be created over the next 15 years on war footing!



Unless concerted efforts are made now to train and enable the 90% who are presently considered as “drop-outs” (of university oriented system and mind set), the national asset of young population will quickly become a liability of unemployable youth. Society must execute on concerted and strategic plans to create respectable and reasonable earning and living options for the rising waves of youth entering job market each year. If there is no social recruitment of this resource pool, the anti-social recruitment will inevitably take place!

Furthermore, such strategy must be based on creative out-of-the-box thinking to leverage all possible resources to develop synergy and multiplier effect. This paper is an effort to document ongoing efforts and areas of collaboration amongst all stakeholders whereby a sustainable and repeatable model of TVET delivery to target population is likely to emerge.

2 Gap Analysis

The education system in general should be designed to address the needs of individual learning, grooming and earning capacity on one hand and the needs of the society and socio-economic development on the other. Not all students entering into formal schooling at around 5 years of age are going to go to the university! This fact is true for all societies and by definition the path to higher education is a selective process designed to focus limited resources on select few who have the potential to benefit most from such resources and facilities to further the cause of sustained growth of civilization and humanity. So the higher education fulfills the need of any society and indeed all of humanity to explore new frontiers and open new vistas.

However, a balanced society must also cater to the mundane and to every day needs of the population. Society must develop resources to support and maintain what has been achieved by way of progress and innovation and development over the years. This does not require higher university education but rather functional and technical expertise in operation, maintenance and repair of products, procedures and systems. The need for such technical and vocational expertise for efficient and productive society cannot be over emphasized and the need to plan and allocate resources for developing such expertise has to be a key component of any strategic development initiative of any nation.

Currently in Pakistan, like most other developing countries, a disproportionate ratio of limited resources is being spent on preparing and selecting students for university education. Large outlays from tax revenue are allocated to higher education along with substantial private investments in university-bound education sector. This has resulted in fairly competitive

higher education system in the country with the number of universities increasing by 100% over the last 10 years. However, the allocation of resources to prepare the workforce for a productive and sustainable society has been inadequate and disproportionately low. More so, the resources which are allocated are spent without a comprehensive plan to get the most benefit for the society. Piecemeal strategy without a comprehensive and integrated approach to technical-vocational education and training has failed to produce the desired results. The concept of “Integrated Skills Based Education” is well established by independent research and in Pakistan attempts have been made in 1948, 1959, 1970, 2002 to achieve this objective. The efforts however met with limited success due to missing elements of:

- Demand Driven Skills
- Integrated Hands-On Training
- Clarity and Motivation
- Integrated Internship and Placement Program
- Mitigation of High Operational Costs and Limited Funding
- Missing Linkages with Academia-Business-Industry

In addition, focus on development of workshops (woodwork, metalwork, technical drafting etc.) in schools with high cost of consumables made the TVET component cost-prohibitive and with the advent of private schools in limited facilities unrealistic!

Another key area that was completely overlooked by the planners was that of social acceptance and value put on skills and vocational training by the society. It is imperative that any attempt to present TVET as a value-proposition must be done by addressing the following aspects:

- Higher Self-Esteem & Motivation
- Social Recognition & Respect
- Skills and Vocational Modules in General Education
- Aptitude Based Technical Education
- Integrated Demand Driven Training

- Career Planning and Placement Services
- Employability and Earnings Mechanism for Youth
- Apprenticeship, Internship and Training Opportunity
- Supported Entrepreneurship/Micro-Finance Facility

It is clear that awareness and exposure to TVET both for parents and for children from class 1 to matric must be a pivotal point of any planning. The delivery of TVET should be through multi-media, ICT and computer software based simulators to make TVET exciting and socially acceptable. For those 10% who end up in colleges and universities this will become a lifelong source of hobby and skills and domain exposure while for those 90% who need to find alternate means of social mobility and earnings it will open new vistas and give them confidence that they can pursue careers based on skills and technology. This will be the PUSH approach to exposure to TVET. At the same time a comprehensive PULL approach must be executed through mass media, movies, dramas and social media. Aptitude based admission to post matric vocational and technical education will ensure that the students have the motivation and desire to succeed while the On-the-Job-Training (OJT) and placement services will ensure that industry gets the best trained and skilled staff.

3 Funds Driven Approach

Identifying the gaps is the key to formulating a viable strategy for addressing the gaps and to develop a monitoring and evaluation system to track the progress towards bridging such gaps. Next logical question is the resource requirements to address the gaps. Historically reliance has been placed on public funding and loans and grants from donor agencies to make TVET affordable to the target population. This approach has the benefit of government backing and upfront availability of funds for initial set up of facilities and equipment. However, the relatively high cost of TVET due to operation and maintenance of costly equipment as well as usage of consumables by students makes it difficult for government to allocate public funds on an ongoing basis. Similarly, efforts by various Non-Governmental

Organizations (NGOs) have resulted in limited success and the model has failed to scale. The participation from private parties in the TVET sector has also been muted and unlike general education private funding has mostly stayed away from TVET sector. This points to a gap whereby the business opportunity to deliver skills and employability opportunities to 90% of the youth (over 70 M over the next 15 years) is for some reason not being explored by private funds. Seen in the backdrop of private funding of over 50% of general schools (from pre-school to middle school) in the country, it is clear that lack of funding as of itself is not the reason for lack of TVET institutions and blindly putting more funds to expand TVET will not produce the desired results and may even lead to frustration and abandonment of the strategic cause!

4 Demand Driven Approach

A different approach that does not recognize lack of funds as the reason for lack of enthusiasm for TVET opportunities is based on recognizing a lack of DEMAND for TVET due to a multitude of factors. Unless the social and psychological barriers are addressed, no amount of funds will be able to deliver the desired results. Hence there is a need to create demand for TVET through mass media, parent awareness and student exposure to TVET. Once TVET is seen as a viable and reasonable path for post middle/secondary/high school educated youth, the demand for TVET will surge. Government, media and civil society must project TVET as a source of earnings as well as a source of respect and social recognition. This approach has been tried with great success in the developed world. In USA children in elementary school are introduced to fire-fighters and police through visits by squad cars and fire-engines in full-gear to elementary schools at least once a year where children get to see the equipment up-close and meet with firefighters and police officers at least 5 times before completing elementary school. This builds a strong fascination and internal respect for these professions and it is the dream of most every child graduating from elementary school to become a firefighter! Similarly, the blockbuster Hollywood movies and TV shows generally have lead roles by TVET professionals (Policeman, Firefighter, Cook,

Magician, Technician, TV repairman, Forest ranger, locksmith, computer data operator, technical whiz kid and so on and so forth). This has resulted in youth opting for TVET by choice and huge social acceptance of skills based self-employment.

It is critical that a concerted effort is made in Pakistan whereby demand for TVET is created in youth and respect for the same in society-at-large. Funds that are already devoted to entertainment and media productions can make this happen relatively quickly without any public funding requirement. Similarly, introducing TVET components in general education from class 1 to secondary school using multi-media, class visits by uniformed and presentable TVET professionals, field trips to TVET institutes and industrial units and crafts centres will create awareness and exposure for students and parents. Furthermore, linking TVET to earning potential for the individual, productivity for the industrialist, access to international job market and improved quality of services for the society will ensure sustained demand for qualified and certified TVET man power.

5 Regional & International Models

Developing a viable, sustainable and scalable model for TVET has been an area of concern and experimentation for both developing as well as developed nations.

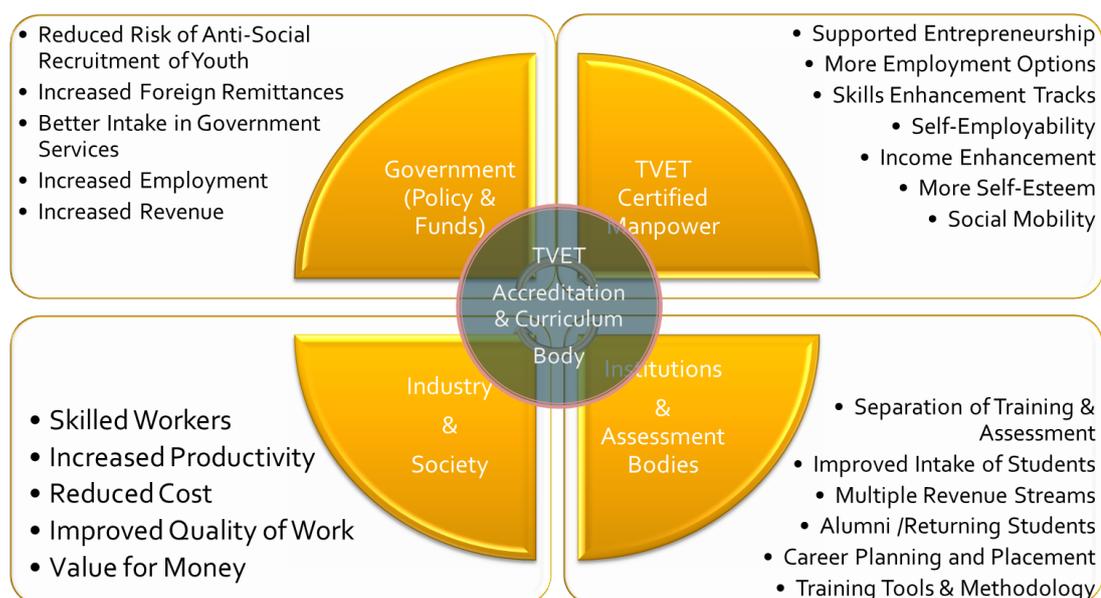
Within our region India is confronted with similar issues including the issues of overcoming psychological barriers similar to those in Pakistan. Several initiatives from government side as well as from business and academic side have been tried but without much success. The need for an integrated approach does not appear to have been recognized and hence the private resources have not been diverted to TVET in the absence of demand even though the target population in India for TVET is over 750M. Attempts are however being made to create public-private partnerships with public funds being made available to private TVET enterprises. The goal is to help private investors in terms of low cost of startup funds and easy repayment plans.

While this approach may be a necessary component it is not sufficient to get the desired results.

Internationally models adopted by Australia, Germany, Malaysia and Philippines are considered successful but these countries do not have the same social barrier to TVET as Pakistan. However, it is valuable to understand the driving mechanism and reasons for success as the same will be useful in defining sustainable model for Pakistan in parallel with the media and awareness strategy. The common theme in the success models is the continuously evolving demand driven curriculum, linkages with the industry and businesses and placement and career planning successes of the training institutions. In other words a successful program must include a mechanism to encourage continuous revision of curriculum based on demand as well as support and placement of the skilled manpower.

6 Public-Private-Partnership

In order to achieve both the social acceptance as well as employability of TVET professionals a Public-Private Partnership is imperative. In fact, such partnership has to be multi-dimensional and based on value derived by each participant. This means the partnership should not be out of charity but on the basis of stakes each partner has in success of TVET model.



6.1 Stakeholders

The stakeholders in an enlarged Public-Private Partnership are:

- Government
- Industry
- Businesses
- TVET Institutes
- Assessment and Certification Bodies
- General School System
- Universities
- Media
- Financial Institutions
- Civil Society

Each stakeholder should be an active and willing member of this partnership based on achieving their own objectives through participation both as a contributor and as a beneficiary.

6.2 Role of Government

The role of government is pivotal but not necessarily as the source of funds! The role is seen more as a policy maker and as an enabler from the point of view of fiscal and tax regime, uniform and consistent rules and incentives to other stakeholders to participate in their own self-interest.

Role of Pakistani missions around the world is also critical in promoting Pakistan TVET Institutions both for enrollment from abroad and for placement of skilled manpower in the ageing developed societies facing and increasing shortage of technical and skilled manpower.

6.3 Role of Business & Industry

Business and Industry are actually suffering the most from non-availability of certified and trained manpower in the fields and technologies they need to be competitive and successful. Many larger industries and businesses are running their own training facilities and are thus forced to divert their energies and funds in an area which is not their core competence. If trained

manpower from reputable institutions is available and such industries and businesses join the partnership as providers of On-the-Job-Training (OJT) and apprenticeship opportunities then they can not only reduce their costs but also find the suitable candidates for permanent employment based on actual performance during apprenticeship.

It is in the interest of the government as well as NGOs to provide stipends and funds to trainees so that the industrialist/businessmen is not forced to bear all the costs of under training worker.

6.4 Role of TVET Institutes

TVET Institutes have a huge role as the nexus that keeps all stakeholders focused on the extended partnership benefits, delivers the actual training and maintains a supportive network for its alumni. Faculty of TVET institutions being technically qualified should also be enabled and encouraged to work as consultants in the industry and be a source of continuous curriculum revision based on market needs.

TVET institutions should also be the prime point of data collection on the performance of alumni in the market, continuing education and professional recognition of high achievers.

6.5 Role of Assessment & Certification Bodies

To ensure the credibility and international acceptance of technical certification from Pakistani TVET institutions, a strong, merit based system of third party testing and assessment is required. Based on the assessment of the institution and the students certification bodies can issue the certificates as well as maintain a central database of technical manpower. Access to such database by employers will ensure hiring of certified manpower and a demand for certified workers in the society. Similarly, all continuing education and subsequent qualifications need to be maintained to ensure the efforts are recognized and rewarded.

6.6 Role of General School System

The support of the general education and school system is critical for ensuring early exposure to various career options both for parents and for the students.

Delivery of TVET as a component on the same lines as “Computer Science” or “Sports” in educational institutions both public and private is important for creating awareness and exposure at an early stage. While not every child will become a computer scientist or a sportsman, the exposure is seen as of high value by both educationists as well as parents. Similarly, having progressive and selected TVET units delivered in class through multimedia, Computer simulation and similar means from class 1 through matric will ensure that all students have options in career choice based on their own interest and capacity.

Schools also benefit as the number of drop-outs are reduced drastically and alternate career options allow student counselors to guide the students more effectively for careers beyond secondary school.

6.7 Role of University & Academia

In many ways there is a direct responsibility on those who are able to complete university education to use their knowledge and capacity to develop strategy and plans for those 90% who did not go past the high school level. However, in addition to the philosophical and social obligations, it is in the interest of the universities and faculty to direct their research to areas of direct importance to the society in so far as the TVET landscape exploration is concerned. University research as well as MA, MSc, MPhil and PhD projects and thesis can be directed in developing more insight into the TVET sector, public mindset, government policy, TVET tools, TVET distance learning and delivery, computer software based simulators, assessment tools and continuing education modules, hardware simulator design and development and many other research activities can be done using existing resources dedicated to higher education with the output of research being of direct social benefit and deployable for the training and distance learning of TVET.

Early exposure in school to TVET will also enable future university students and indeed future university faculty to use their creativity to take TVET quality in Pakistan to world leading position!

6.8 Role of Media

Media in all its formats has an increasingly important role in taking the message out to the public at large and to parents, students and businesses in particular. Integrated and subtle approach of bringing TVET into limelight and by creating dramas and movies that cast TVET professionals in a positive light does not require any additional funding but can play a pivotal role in acceptance of TVET at social level.

6.9 Role of Financial Institutions

TVET is a sector which lends itself to self-employability as well as to entrepreneurship and job creation. The amount of investment required is generally at the level of micro-financing as the primary asset of the TVET professional is the skill set and market knowledge. Financial institutions can play their part and also benefit by developing viable financing models for intellectual/skill property based financing for small enterprises. The collateral may be the database of certified skilled professional maintained by the certification bodies, trade bodies, TVET institutions whereby professional excellence as well as personal integrity history can be ascertained and be used for financing a viable business plan.

This will open a huge space for financial institutions for generating returns on their liquid funds while playing a role in creating employment and improving quality of service. Awareness of such availability of funds will also result in a demand for TVET as a career of choice.

6.10 Role of Civil Society

Role of NGOs and civil society in enabling 90% of population is important both as a support network and also as a monitoring and evaluating mechanism to provide data and to compile reports on the effectiveness of the model overtime. Some of these studies can be done by civil society organizations through their own resources and some in collaboration with universities and private institutions. No additional government funds are needed as such efforts are already made by NGOs through their own funding efforts. By directing those funds to TVET model study and refinement on a continuous basis and making such analysis and reports available to other stakeholders

will not only save public funds from being spent on similar studies but will also inform the decision making process at each level in an objective and documented manner.

7 Case Study: NFRD Centre of Excellence-Rawat

National Foundation for Resource Development (NFRD) is a Not-for-Profit Foundation based in Rawalpindi, Pakistan. The foundation is dedicated to national socio-economic revival through strengthening the capacity of each willing citizen in becoming a productive member of the society. The objective is to support creation of a dynamic, self-reliant and confident group of individuals who can embark on the path of self-employability, entrepreneurship and creation of job opportunities for the others. By reducing the reliance on government jobs through entrepreneurship, NFRD seeks to achieve the goal of reducing the burden on public exchequer on one hand and by creating a larger pool of value-adding, tax paying enterprises and individuals on the other.

INTEGRATED CAPACITY BUILDING - RAWAT



NFRD Centre of Excellence – Rawat model envisages an integrated approach to TVET through development of physical institutes and facilities on one integrated campus for continuous collaboration and exposure of parents, students, teachers and craftsmen to the concept while at the same time developing linkages and partnerships with businesses and industries for placement of students for internships, OJT and apprenticeship. Similarly, linkages with government, academia and international job market have been developed along with alumni networking to ensure institutional support to alumni and vice versa even after completion of course of studies and training. The deserving TVET professionals are also provided micro-financing facility and business linkages to help them on path of supported entrepreneurship and self-employment. Over 6,000 have been successfully trained in various skills in a short period. During 2012-2013 academic year 2,500 students of general education, technical education and short term vocational tracks will benefit from the integrated resources.

7.1 General Education with TVET Components

NFRD Public School and College has been established since 2011 with integrated TVET components as part of general curriculum. The students are exposed opportunities in TVET both as a hobby and as a career choice. In 2012 a nursery school “Saplings” has also been added on the integrated campus and concepts of hands-on learning and recognition of tools through cartoons and alphabets learning modules are being explored with the goal of curriculum development for early TVET exposure and for making the same available to other schools.

7.2 Technical Education, Polytechnic Institute

Resource Development Institute (RDI) was the first institute established to promote integrated technical and general education as well as to provide OJT and job placement to the alumni. The Polytechnic Institute is providing DAE qualifications in several fields related to construction industry primarily driven by actual demand by partner group of construction companies. RDI has also imparted technical training to thousands of students both through

placement on actual construction projects and through classroom learning. Matric Tech is also being offered since 2011 at the integrated Rawat campus.

7.3 Multi-Media Teaching Tools

Multi-media teaching tools are used extensively to impart instructions and visuals to the students. Additional multi-media content is being developed for incorporating TVET modules at all levels of education in a seamless and exciting manner. The multi-media tools once developed and tested will be made available to other schools in the interest of TVET adoption at a fast pace.

7.4 Laboratories

Several state of the art laboratories have been established in general science education areas of physics, chemistry and biology as well as in specialized technical areas of soil testing and material testing. The laboratories are used as an integral part of learning and exposure to students while at the same time laboratories take actual client work on commercial basis to reduce the cost of operations as well as to give real field exposure to teachers and supervisors.

7.5 Production Workshops

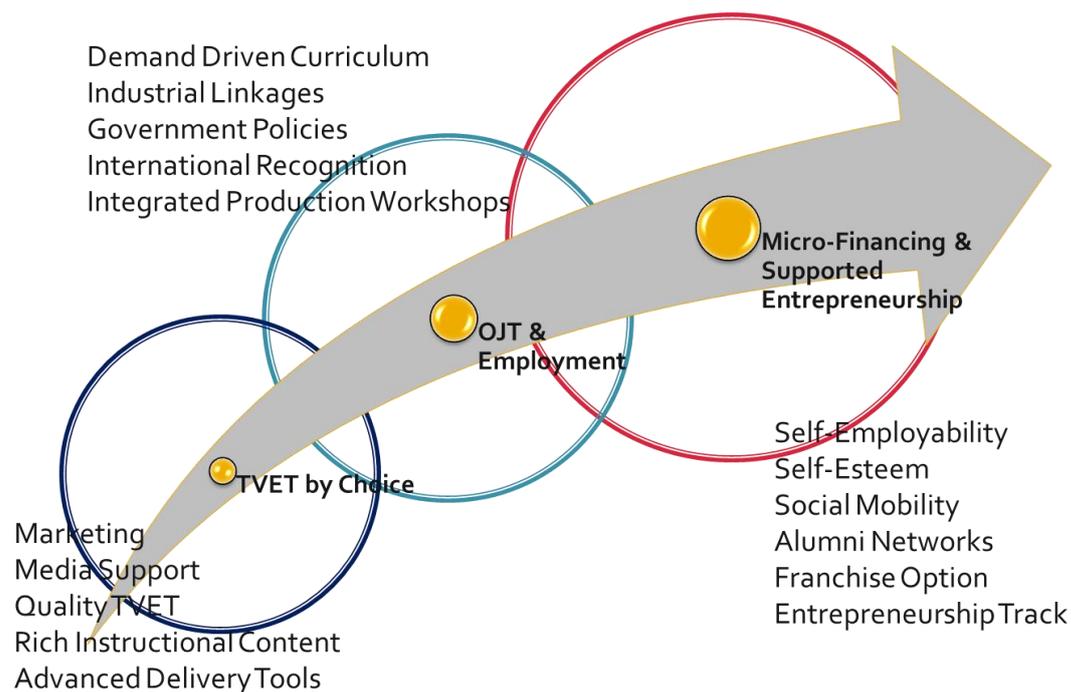
In addition to laboratories, production workshops have been established on campus. Woodwork shop, metalwork shop, fabrication and welding shop, tile cutting and tile mosaic design shop are operational and providing hands-on experience to students. The workshops also take market jobs on commercial basis and are a source of revenue for the campus. In addition the actual shop floor supervisor is also a teacher thereby bridging the gap between theory and actual production situations.

7.6 On-The-Job-Training

NFRD and RDI have successfully created linkages with industry whereby RDI students are placed on internships as well as get OJT as part of the course work. The exposure to real work environment has resulted in a large number of students getting employment after completion of training. Students taking short courses in AutoCAD or Primavera or Eagle Point or other software packages have also been successfully placed as interns in design sections of partner companies.

7.7 Placement and Career Planning

NFRD Centre of Excellence has started a placement and career planning office for its alumni. The goal is to maintain alumni network, develop industry and business linkages and to explore international opportunities to place our alumni worldwide even if an opportunity is identified after many years matching an alumni profile. This service will be further expanded as the pool of our alumni increases with time.



7.8 Supported Entrepreneurship

NFRD integrated education and continuous professional development model revolves around the concept of supporting and enabling our students and alumni throughout their career and to involve the alumni with the growth and expansion of the institutes over the years in any capacity including as visiting faculty, offering their facilities for OJT and internships and for any collaboration and use of campus facilities to further the cause of TVET and national resource development. Those alumni who have a business concept can be provided with business planning and feasibility studies and consultancy, prototyping facilities and where needed with micro-financing and business linkages to ensure their success. Missing skills in a business startup team can be provided through the alumni network as well as

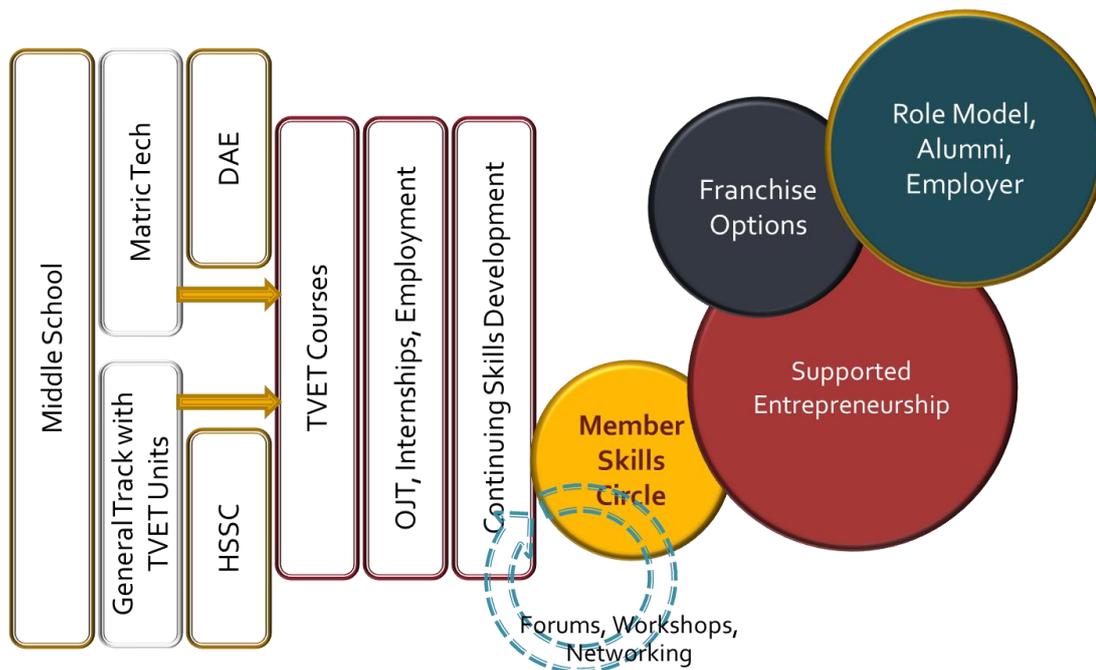
placement and career planning office to ensure that the entrepreneur is supported and teamed with other professionals thereby increasing the potential for success!

7.9 Franchise Model

NFRD is currently working in developing franchise models under its brand for the delivery of services, material trade and production units. The concept is based on the experience that most people are job oriented and have had little exposure to business development and enterprise development. The risk of starting small business is documented as quite high as even in USA 80% of all new small businesses fail due to one reason or the other. The franchise model worldwide has proven to be less susceptible to failure as marketing and product pricing, sourcing and design aspects are all taken care off at the franchisor level and the franchisee can focus on quality of administration, operational excellence and customer satisfaction. TVET professionals with solid domain knowledge and technical skills are well positioned to start on the path to entrepreneurship through a franchise model.

7.10 Distance Learning, Self-Paced Learning

The requirement to provide technical know-how and training to a large number of potential trainees in a short period of time requires out-of-the-box thinking and new ways of delivering TVET. Distance learning using modern computer networks and specialized programming and content is being adopted world over in a variety of areas and NFRD has taken a lead in developing the TVET distance learning platform in Pakistan. In addition there is a need for in-service or working individuals to be able to continue the learning process if there is a desire for self-development and personal growth long after formal studies were completed or terminated for any reason. Providing on-line self-paced learning modules allow individuals to learn and repeat any module until they acquire the required proficiency. On achieving the objective the individual can be assessed and certified based on actual performance. This model is scalable and opens the avenues of continuous learning for TVET field professionals.



8 Intervention Measures Identified

In the light of the gap analysis, a sustainable and scalable TVET delivery model which is both demand driven and easily accessible to target population is proposed here. The model is based on the success of an integrated TVET model developed by NFRD and RDI over the last 6 years with the main campus at Rawat, Islamabad. Following are the key intervention measures for sustainable funding of a demand driven, continuously evolving TVET delivery strategy primarily to give pass-outs of secondary school a reasonable earning and a chance to rise up the social ladder. (The model also envisages viable options/tracks to incorporate middle pass and high school pass who are not college bound)

8.1 Supportive Policy and Regulatory Framework

Set up of central registration and database authority for TVET professionals whether certified or not. Provide Web based registration and verification of TVET professionals. TVET ID Card to be issued with field of specialization to TVET professionals.

Employers should pay an annual or per verification fee on hiring of any TVET professional. End users can verify TVET professional registration status online

free of cost. This can be a source of advertisement based revenue and publicity of TVET for free.

Portion of ICT R&D Fund to be designated for use by Universities and TVET institutions for innovative projects like TVET Teaching tools (simulators etc.), capacity building and distance learning systems, Robotics and high end IT trainings

Prequalification of construction and technical services companies with government departments at all levels should be dependent on the requirement to have on payroll a certain minimum number of certified TVET professionals of various grades. The number should be based on the size of the contract and the PEC registration level of the company.

Pakistan Engineering Council should register and renew the registration of any technical services company based on number and grades of certified TVET professionals engaged by the company at the time of registration and annual renewal.

1% of the tender value of all Government awarded contracts should be in the form of TVET Vouchers. The Company can claim this investment as an expense by documenting OJT and apprenticeship offered to TVET trainees or recent alumni or claim tax rebate in the tax return for utilization of vouchers by TVET institute or trainees.

8.2 Social and Cultural Acceptability

The importance of social acceptance and upward mobility is a strong motivation for any human being. TVET profession has suffered tremendously in Pakistan due to general attitude towards manual or skill based work. It is critical that this is reversed through sustained delivery of positive TVET identity through electronic and print media. Similarly, utilization of social media networks on the Internet can develop a positive mindset amongst the youth. Awareness and exposure of parents and students to TVET career choices will also increase acceptability.

Knowledge of the earning potential and proven record of success of individuals will create demand and attract large number of youth to TVET by choice.

8.3 Integrated Curriculum Development

It is imperative that both at federal and at provincial levels efforts are made on not only upgrading the contents of technical courses but to also explore modern media rich, dynamic and interactive curriculum to make the subjects relevant and interesting for the youth. TVET curriculum must be developed for delivery as a course module to all students starting from class 1 through matric. This has to be mandated.

There will be no additional burden on the schools as it will be only one hour class per week for each class at a fixed amount per child per month. A portion of the amount may be retained by the school for its overheads and the remaining paid to a TVET franchise which will schedule and send certified and trained TVET technicians/teachers with all the requisite class material. No capital expenditure will be required from general schools for TVET purposes. Government funds may be initially required either as grant or as loan to establish the franchises for TVET delivery in schools.

8.4 Computer and Information Technology

Use of modern technologies and tools is essential to reduce the cost of TVET and to make it more interesting and adaptive. Linkages with higher education institutions will be developed resulting in university prototypes, projects and thesis being directly relevant to TVET institutions and learning environment. Similarly, collaboration with business schools and engineering schools should benefit the entrepreneurship and technical aspects of TVET curriculum.

8.5 Business and Industry Buy-in

No TVET program can be successful if it is out of sync with the needs of the industry. The economy of the country has seen a tremendous shift in favour of services sector and the number of vocational and technical jobs in the service industry has increased many folds. Yet service sector apprenticeships are still

not eligible for government subsidy. Similarly, the TVET programs offered by the TVET institutions have failed to stay relevant. It is therefore, proposed that a voucher system be introduced to better direct the government and charity contributions towards TVET. The total value of TVET program should be measured in terms of the following factors:

- Quality and Relevance of the Course
- OJT and Internship opportunities
- Placement and Career Counseling
- Alumni Network and Support Infrastructure

In order to support such an integrated model the TVET voucher should have 4 progress base redeemable parts and two bonus parts.

- 25% on admission and joining of a new student
- 25% on successful course completion
- 25% on OJT and/or internship placement
- 25% on employment
- Bonus 1: on alumni becoming an entrepreneur/self-employed professional
- Bonus 2: on the entrepreneur hiring at least two certified TVET professionals

TVET vouchers may also be purchased by individuals from any bank for giving to deserving students to complete TVET course and become productive member of the society.

Any portion of TVET voucher not redeemed within the stipulated time frame will be voided automatically.

Vouchers may be given directly to students or to the institute or a combination thereof. The value of TVET vouchers given directly to the student is that the student is free to choose the best value institute and when such voucher is presented for encashment, the choice of the student will give feedback about the brand and quality of a given TVET institute.

The six portions of the voucher not only force an integrated approach to TVET, it also provides a mechanism to track progress and effectiveness of the institute in developing linkages and in placing their alumni in industry. Successful completion of courses also provides the overall data of student pass percentages. Bonus program is designed to reward those institutes which maintain alumni databases and contacts and are willing to provide their alumni all necessary support to become independent and indeed to become an employer of other TVET pass-outs!

8.6 Training Facilities Network

The proposed integrated model emphasizes the value of unlocking the existing values through creative policy and legislation. One such approach is the development of certified and approved training facilities within each zone. Such facilities may include facilities of other institutes but more importantly must include the actual production and service shops in the field. A given facility may be approved for a certain maximum number of trainee students at any given time. This will essentially institutionalize the “Ustad Jee” and such field units may even get additional funds to upgrade their facilities to be paid back through payments due to the unit for training provisions. Similarly shops of known artisans and craftsmen can be designated as an extension of a TVET institute so that students may learn the trade from the “USTAD” and get their certificate from the institute.

8.7 Placement, Counseling and Career Tracks

To support career counseling and placement services at each institute, voucher system is sufficient incentive. However, additional bonus may be offered if the institute is able to place the alumni in the international market thereby generating foreign remittances for the country.

8.8 Integrated Education Model

The model requires that the school should be an enterprise and an enterprise should be a school! This requires that production workshops be established at institutes to not only earn but to also provide more realistic training environment. Similarly, industry and service sector should provide OJT and

apprenticeship and act as a training institution specially during school break and summer period. Delivery of TVET education through mobile units at job sites should also be explored. One hour training on-site every day of a project will substantially prepare the manpower for certification and will provide a way for voucher redeeming for the contractor.

8.9 Supported Entrepreneurship

Through supported entrepreneurship any technical hand can rise based on honest work and quality of service. Supported entrepreneurship requires support from the institution in terms of business planning and investment proposals. It also entails developing linkages on an individual basis and through alumni network. Government policy is required to provide micro-financing based on technical background and history of a TVET professional. Banks and NGOs should be able to fund through loans or grants select business proposals based on domain expertise of the promoter and the support of the institution. This does not really require any additional TVET funding but will create huge demand for TVET if people can see a path based on sheer hard work and own integrity towards financial independence.

8.10 Craftsmen Clubs

TVET is a field that requires continuous learning and skills up gradation. Technology has increased the pace of innovation and development of new products and tools. The need for technical manpower to stay abreast of such changes is more important today than ever before. Establishing trade specific clubs for craftsmen and professionals to meet and socialize also helps in improving social standing of the TVET profession and attracts more quality students. It is therefore proposed that such craftsmen clubs or centres be established through government facilitation and transfer of land to the select TVET Institute alumni network which will then raise the necessary funds to build the clubhouse and operate it under the alumni network but membership being open to all certified professionals.

9 Conclusion and Recommendations

The focus of the paper is to explore sustainable and scalable funding options for delivery of TVET to a large target population. The high up front cost as well as high per student cost of TVET has been recognized by both developed as well developing countries as a barrier to TVET adoption. While this is a well-documented fact, it does not take into account two key factors that actually address the issue effectively:

- Use of modern multi-media, computer software and Internet based tools
- Direct funding by the beneficiary

This not only reduces the delivery cost and increases the demand but a clear value for money message can quickly increase the revenue base and attract private investment. If the earning potential and employability can be established for a TVET program, cost of the program spread over 6 months or a year will not be a barrier to enrollment.

It is therefore recommended that sustainable funding model must be based on demand. Demand by the potential trainee and demand by the potential employer! Any program that is consistent with these two demands will invariably succeed and will having no funding constraint! In Pakistan the demand for TVET training suffers from:

- Lack of Social acceptance
- Lack of exposure and awareness amongst parents, students and teachers within general education system
- Lack of support infrastructure and professional networks for TVET
- Lack of Registration, Verification and Referral service
- Lack of employability and market readiness of TVET trainees

Any program that addresses these aspects effectively and is able to place its alumni in industry or in entrepreneurship positions with salaries that justify the investment in TVET program will have no issue with willing students paying the full fees!

It is therefore strongly recommended that media and mass awareness through direct and subtle means, introduction of compulsory TVET unit in all schools delivered by TVET trained professionals, TVET ID card and central registration of qualifications and expertise at national level will go a long way in creating social acceptance while demand driven continuously updated curriculum, employer participation in TVET institutions, privatization of TVET institutions or long term lease and transfer of management control of TVET institutions to private parties and performance based funding and support for an integrated model through voucher systems will ensure that TVET institutes offer only demand driven courses and that they will only get the full value of funding if their alumni is gainfully employed.

Hence all the funding requirements can be met through careful policy implementation and by ensuring demand driven enrolment in the institutes.