

**Cost efficiency for Service Delivery through
Public-Public, Public-Community and
Public-Private Partnership Models: A Case
study of Small Industries Development
Board (SIDB), KP
4th April, 2012**

By

Syed Akhter Hussain Shah (Managing Director, Small Industries
Development Board, Government of KP, Pakistan)

Tariq Shah (Assistant Professor, Department of Mathematics,
Quaid-i-Azam University Islamabad-Pakistan)

and **Mahmood Khalid** (Research Economist , Pakistan Institute of
Development Economics, Islamabad-Pakistan)

Outline

- Introduction
- Partnership Approach
- Algebraic Model of Public Partnership (AMPP)
- Social Capital Matrix (SCM)-Extension
- Findings of the Model
- Empirical Findings: A Case Study of SIDB, KP
- Conclusion and Policy Recommendations

Introduction

- **Societal Production Function**; Public, Private agents and Community
- Suboptimal utilization of resources by Government; **isolationist strategy**, old laws, procedures, less efficient technology, lack of dynamic research and development wings in the public sectors.
- Private and public sector **potentials are not jointly** taken into account at the time of planning and target setting.
- At the time of **tactical and operational strategy** making policies are devised in isolation as an independent and mutually exclusive systems; **Same Customer Base** results in low productivity and higher level of unemployment.
- Both diversification and dynamism in the system is less accounted for at the time of target setting, activities planning and achievements.
- **Diversification** includes number of assets, sectors, and activities are being carried out in surrounding of a system but these are not accounted for appropriately at the moment.
- **Dynamism** urges to consider changes to improve technologies; skills, management techniques, production methodologies, governance and new developments in the world are either accounted for or accounted with lag factor in respect of time and partial adoption. So time calculation, forward looking and early adjustment without lags or small number of lags with short span of time lags is not done in government sector.

Introduction contd..

- Setting targets and operational mechanism in isolation reduces pace and **increase cost** in term of money and time with low impact on national economy.
- There are wastage of resources on duplication of a number of activities. Many a time primary and secondary activities are carried out by a number of department but scarcity of resources, changing priorities of successive political governments, frequent changes of human resource deployed in operational activities reduces probabilities of completion of targets by the respective organizations and government.
- It is required to consider all the potentials existing in the system in **totalitarian perspective**, i.e. total no of departments, organizations their available inputs, assets, strengths, human and physical capital, existing mechanism of production service delivery, and marketing.
- Therefore there is a possibility of Public-Public, Public-community and public-pvt combinations for provisioning of goods and services in an optimal manner.
- In this study we have taken the case study of Small Industries Development Boards (SIDB) to prove the above hypothesis.

Partnership-Approach to Service Delivery

- For optimal service delivery to the people with limited resources governments across the globe are working towards new avenues.
- The search for new methods for the production and delivery of public services has given new concepts (or at least new labels) such as the more general "alternative service delivery" (ASD), and the more specific "public private partnerships" (PPPs or P3s) (Bettignies and Ross , 2004).

Partnership-Approach to Service Delivery Contd..

- As an example for Pakistan Shah(2010) has used the Umbrella Integrated Model of Revenue Expansion (UIMRE), which is based on non-conventional principals of public administration, efficient management, time-centered strategy, and modern economic structures, which proposes modification in the existing redundant inefficient procedures, rules and working atmosphere to pursue revenue expansion as a national issue.
- Shah(2010) further states that efficient, Supporting and well integrating role of all the ministries/integrating partners to pursue common national issue/cause under one umbrella of Prime Minister have been devised. The expanded horizontal cum vertical correspondence structure among integrating Ministries such as Finance, Water and Power, Petroleum, CBR and Provincial Government is lengthy ineffective and inefficient in case of National Issue, therefore it is replaced with the only vertical administrative correspondence structure under the umbrella of Prime Minister. All the policies regarding revenue expansion would be formulated under the umbrella, their review meeting, implementation, on going analysis and rectification would be made according.

Efficiency of Service Delivery

- So three dimensions of the issue can now be identified from the existing literature and practice; first the service delivery efficiency depends on the Cost of producing goods and services and the coverage of society agents it is focusing.
- Secondly there are still room for market development in various goods and services for sustainability and growth of the economy and
- lastly the realization of social welfare goals are inefficient without recognizing other best alternatives.
- Over all it is observed that there is lesser efforts by the public sector to address these issues. Hence we do not see much projects coming in the areas of Public-Public, Public-Private and Public- Community partnerships. E.g. for the service delivery pertaining to clean drinking water, environmental improvement etc.
- Secondly with very few projects which are initiated for such issues, often lack objectivity, the goals are not well defined and hence the results are also not optimum.
- So the whole process of public choice and service delivery needs to be integrated in such a manner that the voters satisfaction and service delivery is up to mark.

Algebraic Model of Public Partnership (AMPP)

- Social Capital based Model of Public Partnerships is development

<i>Stake holders</i>	<i>Individual(L)</i>	<i>Community(C)</i>	<i>Organization(O)</i>	<i>State(S)</i>
<i>Individual(L)</i>	<i>L vs L</i>	<i>L vs C</i>	<i>L vs O</i>	<i>L vs S</i>
<i>Community(C)</i>	<i>C vs L</i>	<i>C vs C</i>	<i>C vs O</i>	<i>C vs S</i>
<i>Organization(O)</i>	<i>O vs L</i>	<i>O vs C</i>	<i>O vs O</i>	<i>O vs S</i>
<i>State(S)</i>	<i>S vs L</i>	<i>S vs C</i>	<i>S vs O</i>	<i>S vs S</i>

Algebraic Model of Public Partnership (AMPP) contd..

- Algebraic representation of SCM is developed in Shah, Shah, and Ahmad (2010) which states that mathematical construction is capable of representing social capital matrix in a formal way with a large number of components in multiple dimensions.
- Shah, et al (2010) considered state as the finite Boolean algebra which has two active categories (vectors) denoted as \mathcal{S} or \mathcal{R} . The category \mathcal{S} represents the investments/spending and \mathcal{R} represents the return/welfare indicator of the state. A higher order linear space represents organization with four (categories of organizations). Likewise the linear spaces \mathcal{C} and \mathcal{I} represent community with eight (categories communities) and individual with sixteen (categories of individuals) respectively. Social capital matrix in (Shah, et al (2010)) helps in observing the specific behavior of categories of each system during intra-action and across interactions regarding their economic activity and social capital formulation. It also states that the business of a state depending on two indicators is running all other systems by its authoritative position.

Algebraic Model of Public Partnership (AMPP) contd..

- 1 Interactions across the systems, given that not all the components of a category of the larger system are doing business with the components of the smaller system, shows that the total assets/resources are not operationalized by the larger system rather a part is left for its own survival.
- 2 In the process of intra-action of a system all components of two interactive categories are doing business with all of their corresponding components, which reflects that the total assets of interactive categories of the system under consideration are fully operationalized and no part is left for its own survival.

The Model

- Model of Shah, Shah and Ahmad (2010) can be generalized by considering $\mathbb{Z}/n\mathbb{Z}$ as a state with any positive integer n . If n is prime, then $\mathbb{Z}/n\mathbb{Z}$ behaves as a field and almost same algebraic construction applies as considered in Shah, Shah and Ahmed (2010) and the behavior of $\mathbb{Z}/n\mathbb{Z}$ can be characterized with complexities. This extended approach may provide a rationale regarding non-availability of smooth environment for interaction of categories.

The Model contd..

- Now, first we make notion of Shah, et al (2010) compatible with terminology, considered in this study.

Category (Partner)	◀	System
Public	◀	Organization (O)
A category of System Community	◀	Community (C)
Private	◀	Individual (L)

Interactions (partnerships) of interest

- Organization- Organization, Organization –Community and Organization –Individual, that is the following components of social capital matrix are of interest.

O-O	O-C	O-L
$Z_2^2 \times Z_2^2$	$Z_2^2 \times Z_2^3$	$Z_2^2 \times Z_2^4$
▼	▼	▼
PPP	PCP	PPtP

Description of Model

- PPP took place under O-O, PCP took place under O-C and PPtP took place under O-L.
- Whereas PPP, PCP and PPtP stand for Public-Public Partnership, Public-Community Partnership and Public-Private Partnership respectively.

An extension in study

- In general perspective if we consider that a State has p # of resources, where p represent the prime p and then State will be the finite field and the following situation arises.

O-O	O-C	O-L
$Z_p^2 \times Z_p^2$	$Z_p^2 \times Z_p^3$	$Z_p^2 \times Z_p^4$
▼	▼	▼
PPP	PCP	PPtP

- For convenience in this model we assigned value 2 to p for better understanding the philosophy of this study.

An extension in study contd..

- The numbers of partners match with numeric taken in Shah, T. et al (2010), so this facility we enjoy as follow:

1.

Organization (O)	10	01	11	00
Z_2^2				
Public	SIDB	FATADA	NEVTEC	AHAN

2.

Community (C)	101	111	110	011	100	010	100	000
Z_2^3								
	APWA	--	--	--	--	--	--	--

3.

Individual (L)	1111	1110
Z_2^4								
Private	-	-	-	-	-	-	-	-

Findings: PPP leads to market development

If we take $m = 2$, then $\delta : Z_2^2 \times Z_2^2 \rightarrow Z_2^2$, defined as

$$\delta(a_1, a_2, b_1, b_2) = c_1, c_2 \in Z_2^2, \text{ where } c_i = a_i + b_i, 1 \leq i \leq 2.$$

As Z_2^2 represent the organization. The partnership function δ explains the Organization-Organization interaction. In this type of partnership all components of two categories (public sectors) of the organization is doing business with all of their corresponding components. This also reflects that the total assets of interactive partnership, public sectors of the organization are fully operationalized and no part left for substance for their own survival. Hence this indicates the case, that is in favor to this finding that categories of the organization that consumes/spend all of its assets/resources in one period. This also indicates that intra-action of any system provide a high level of trust among the partners of the same system, which causes economic activity, which lead to market development as well as creates social capital of partners and hence to the system under consideration.

Findings: PPP leads to market development contd...

SIDB-SIDB

$$\mathcal{S}(10,10) = 00 \in Z_2^2.$$

This explains that if a public sector has partnership with itself an extreme situation arises, a non rational standing.

SIDB-FATADA

$$\mathcal{S}(10,01) = 11 \in Z_2^2.$$

This explains that partnership of SIDB with FATADA reflects another extreme situation of highest development level.

SIDB-NEVTEC

$$\mathcal{S}(10,11) = 01 \in Z_2^2.$$

This explains that partnership of SIDB with FATADA reflects the stable situation regarding development and spending potential.

SIDB-AHAN

$$\mathcal{S}(10,00) = 10 \in Z_2^2.$$

This explains that partnership of SIDB with FATADA reflects stable situation regarding development and spending potential.

This partnership expanded production possibilities and numbers of goods and services.

PCP leads to realization of social welfare goals

Consider the partnership function

$$\delta : Z_2^l \times Z_2^m \rightarrow Z_2^m, \text{ where } m = 3, \text{ and } l = 2$$

$$\text{by } \delta (a_1..a_l, a_{l+1}..a_m, b_1..b_m) = c_1..c_l, c_{l+1}..c_m \in Z_2^m,$$

$$\text{for any } a_1..a_l \in Z_2^l, b_1..b_m \in Z_2^m \text{ and } a_{l+1} = .. = a_m = 0.$$

Whereas $c_i = a_i + b_i$, $1 \leq i \leq 3$. We call δ the across inter-active function, which is interpreted as the economic trade off among the categories of different systems. However in result of this trade off, again a category (partner) is obtained, which in fact belongs to the larger system of across inter-active systems.

Partner	?	Community (C)
APWA	?	Z_2^3

PCP leads to realization of social welfare goals

By across inter-active function δ , $2=1 \leq m=3$ we conclude that interaction of the system Z_2^3

with Z_2^2 provided that the $(2+1)$ th component of the larger system (in size and dimension)

Z_2^3 remains inactive during interaction, i.e. the only first 2 number of components interact with

their corresponding 2 members in the smaller system (in size and dimension) Z_2^2 .

This partnership expanded production possibilities and numbers of goods and services.

PPtP leads to service delivery efficiency in terms of Cost reduction and Scope increase

Consider the partnership function

$$\delta : Z_2^l \times Z_2^m \rightarrow Z_2^m, \text{ where } m=4, \text{ and } l=2$$

$$\text{by } \delta (a_1..a_l, a_{l+1}..a_m, b_1..b_m) = c_1..c_l, c_{l+1}..c_m \in Z_2^m,$$

$$\text{for any } a_1..a_l \in Z_2^l, b_1..b_m \in Z_2^m \text{ and } a_{l+1} = .. = a_m = 0.$$

Whereas $c_i = a_i + b_i, 1 \leq i \leq 4$. We call δ the across inter-active function, which is interpreted as the economic trade off among the categories of different systems. However in result of this trade off, again a category (partner) is obtained, which is in fact belongs to the larger system of across inter-active systems.

Partner	?	Individual (L)
Private	?	Z_2^4

PPtP leads to service delivery efficiency in terms of Cost reduction and Scope increase

By across inter-active function δ , $2 = l \leq m = 4$ we conclude that interaction of the system Z_2^2 with Z_1^4 provided that the $l+1, l+2, \dots, m$ components of the larger system (in size and dimension) Z_1^4 remains inactive during interaction, i.e. the only first l number of components interact with their corresponding l members in the smaller system (in size and dimension) Z_2^2 . The cost of production of one unit reduces, thereby, more number of goods and services may be produced with a given budget through partnership.

Empirical Evidence: A Case Study of SIDB, KP

- The analysis may be done in two scenarios one in isolation and other with assumption that there is one system with a number of component and integrating partners pursuing developmental objectives while there are a number of departments and organization working in different systems and environment.
- To see what targets may be set, what achievement including production, time of completion, cost per unit of activities, impact of these out puts and their contribution to national and international development can be considered

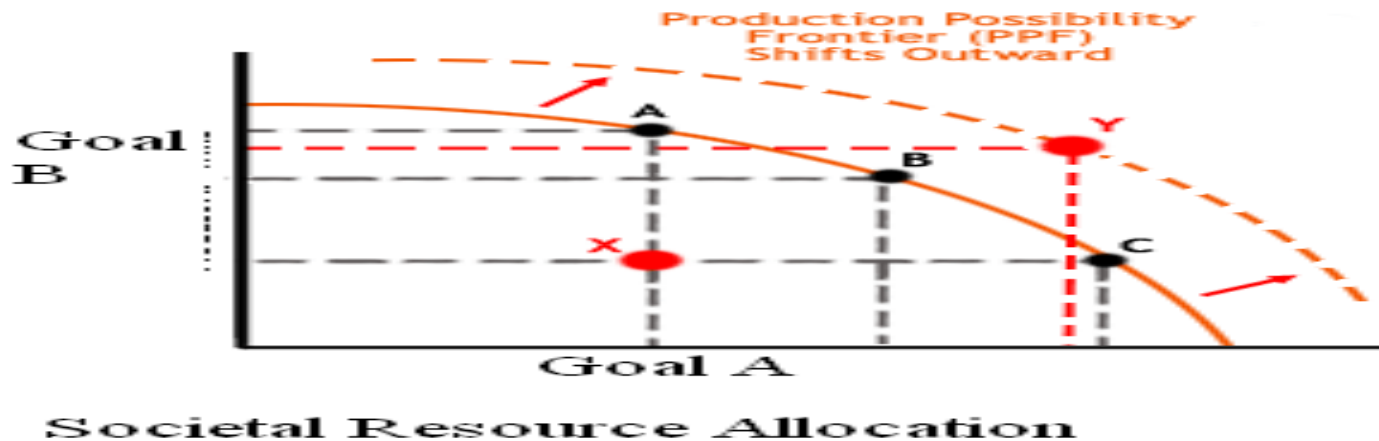
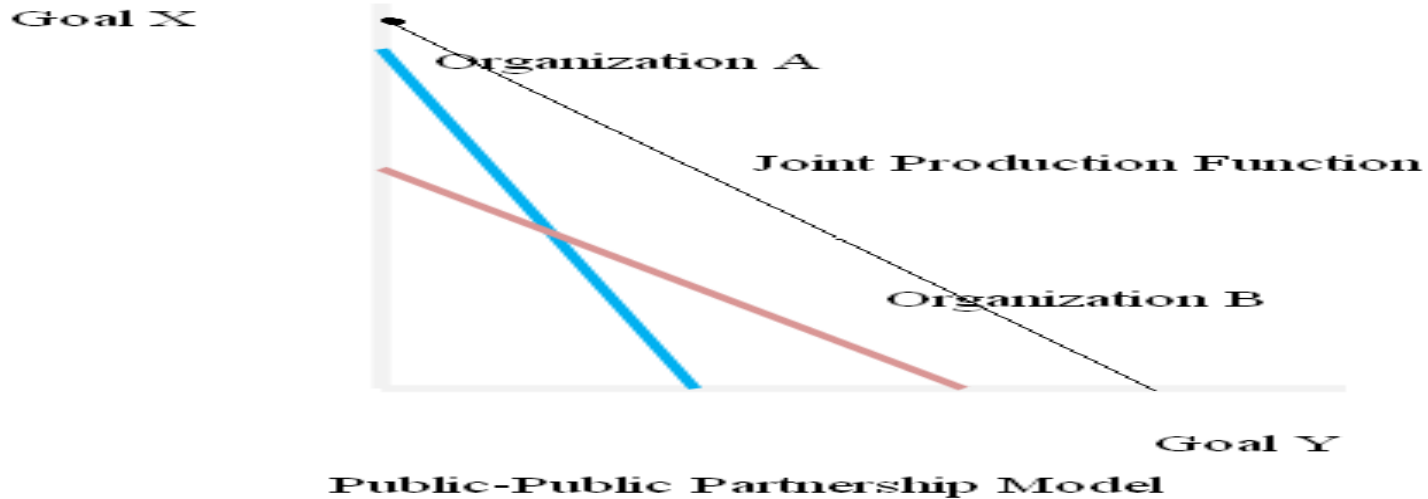
Empirical Evidence: A Case Study of SIDB, KP contd..

- SIDB aims to provide demand driven quality services for investment and industrialization in the province and function as promoters and facilitators of Small Industries in KP. Provide basic infrastructure facilities to accelerate industrial development in the province. This is achieved through:
 1. Providing need based skills to feed the local small industry base for better productivity and quality
 2. Improvement in socio economic conditions of the province through employment generation and industrial development
 3. Establishment of model projects in clusters to make the local industry more competitive
 4. Encourage domestic and foreign investment in overall industrial development
 5. Expedite development of labor intensive industry through acquisition and improvement of appropriate technology

Empirical Evidence: A Case Study of SIDB, KP contd..

6. Encourage development of industries based on indigenous raw materials and indigenous technologies
 7. Encourage balanced industrial growth in different parts of the province
 8. Preservation and promotion of traditional crafts of KP and
 9. Provision of Advisory, Extension Services through model pilot projects
- In view of existing gap between demand for industries, expectation from SIDB, its target and activities and its existing capacity there was a lot to be done to reduce this gap.

Empirical Evidence: A Case Study of SIDB, KP contd..



Empirical Evidence: A Case Study of SIDB, KP contd..

- We analyzed its partnerships in the context of Algebraic Model of Public Partnership model (AMPP) explained above then the testable hypothesis of the model are verified.
- Based on successful experience of partnership with public and private in a few areas/activities as an experiment in certain parts of the province, the SIDB has devised comprehensive strategy.
- The strategy is diversified and open to a number of potential partners covering its risks throughout the province.
- It includes activities like Handicraft, Marble Mosaic, Training in different field, establishment of Small Industrial Estates etc.
- The potential partners from private, public, NGOs, communities, individuals, provincial & federal government would be prospective partners in carrying out different agreed activities.
- These can be seen as below:

Public-Public partnership

- Public organizations are allocated funds on yearly basis in addition to already available assets in the form of physical capital including building, machinery, technology, land and skilled human resource.
- These resources on average produce below their potential level due to insufficient social capital, inappropriate combination of inputs and other factors including faulty management, scarcity of financial capital for operational purpose, changing priorities of political regimes, lengthy government procedures, heterogeneous group of civil servants with varying productivities, attitudes, explicit and implicit priorities, public service inertia.
- It is quite probable that scarcity of the factors of production in one public sector organization is abundant in another organization.
- By developing partnership with each other these two or more than two public sector organizations may increase their level of production by utilizing and sharing inputs.
- A specific inputs scarce organization may get from the specific inputs abundant organization to raise level and pace of production.
- The same is done by the SIDB by developing partnership with other public sector organizations including FATA Development Authority, NEVTEC, AHAN.
- Few of the projects carried out through partnership are given below:

Public-Public Partnerships

Field of Training: Automotive, Light Engineering and Welding & fabrication of sheet metal Through SIDB Mobile Training Units			
Partner Organizations	Role of Partner Organizations	Role of SIDB	Output
National Vocational & Technical Education Commission (NAVTEC)	• Stipend for Trainees	• Mobile Training Units	• No. of trainees trained: 604
	• Salary of Staff	• Machinery & Tools	• Expected annual income from training: Rs.1,380,000/-
	• Raw material, Diesel for Generator & MTU and Training material	• Human resource involved in managerial and finance	
Field of Training: Light Engineering and Welding & fabrication of sheet metal Through ALEP Mardan			
FATA Development Authority	• Stipend for Trainees	• Human resource	• No. of trainees trained: 46
	• Boarding & lodging	• Buildings	• Expected annual income: Rs. 966,000/-
		• Workshops • Machineries	

Public-Private partnership

- Public sector organization set targets with lag factors and implementation is also with lags so completion is delayed and may be half completed projects are left with change in priorities of political government.
- Government projects are not always based on direct return to the government rather for welfare of the individuals.
- Private sectors are most of the time conscious about returns before making investment decisions.
- The private sector takes into account returns and time of completion of projects enabling it to get returns.
- It also keeps information and has sensitive adjustment mechanism to changing market system, so they are more dynamic and sensitive to diversity.
- So their capacity is developed accordingly. Where as on average public sector organization are relatively less dynamic and sensitive to adjustment due to strong vertical administrative hierarchy and inertia. This weakness may be overcome through partnership with the private organizations.
- SIDB developed partnership with private sector organization few of the experiences are given below:

Public-Private partnership

Field of Training: Marble Mosaic

Partner Organizations	Role of Partner Organizations	Role of SIDB	Output
Pakistan Stone Development Corporation (PASDEC)	<ul style="list-style-type: none"> • Stipend for Trainees • Technical Guidance • Purchase of Raw Material • Boarding Facilities 	<ul style="list-style-type: none"> • Building and space • Electricity/other utility Charges • Stationary Charges • Furniture/Fixture 	<ul style="list-style-type: none"> • No. of trainees trained: 75 • No. of Products Developed: 38
All Pakistan women Association KP (APWA)			
Aik Hunar Aik Nagar (AHAN) Peshawar	<ul style="list-style-type: none"> • Salary of Staff • Purchase of Machinery 		
Small and Medium Enterprise Development Corporation (SMEDA)			

Public-Community partnership

- Finally SIDB also extends its partnership with the community at various levels and forms. One of such partnership is described below:
- **Women NGOs-SIDB**

Field of Training: Embroidery Work

		• Human resource, Technical Designs/Guidance	• No. of Products Sold:
All Pakistan women Association KP (APWA)	• Provision of Raw Material		40 shawls
Aik Hunar Aik Nagar (AHAN) Peshawar	• Wages • Marketing/Sales	• Common Facilities, buildings and machineries.	30 ladies suits 40 cushions

Conclusions and Policy Recommendations

- For optimal service delivery to the people with limited resources two other dimensions to existing Public-Private partnership model can be considered. We have identified with the help of AMPP that there is a possibility of Public-Public, Public-community and public-pvt combinations for provisioning of goods and services in an optimal manner.
- This is done by analyzing empirical evidence by SIDB on partnerships with other public, community and private organization.
- It is concluded that the objective of promoting the wellbeing of people while improving the service delivery mechanism and reducing the cost of service delivery has been achieved.

Conclusions and Policy Recommendations contd..

- From the above analyses it is also observed that a Synergy may be created between a number of departments, organizations, public and private sector and organizations
- In this regard a comprehensive strategy may be devised by including all the factors of production, exogenous factors, diversified targets and strengths.
- This needs to take into account strengths of the whole system, its individual components and their roles etc.
- Based on the analyses of SIDB we also found that organization such as these possess a lot of potential in form physical infrastructure and human resource all it needs is essential reforms & planning with effective strategy keeping in view of the resources to meet the challenges of modern world.

Recommendations

- Partnership with individuals, Community based organization Chambers of Commerce & Industries, to enhance overall production of small industries etc. Different inputs may be contributed by different partners. E.g. public entities possess a number of inputs human resource trained in specified skills, managerial skills, social infrastructure with other departments of provincial government and federal government, unutilized or less utilized land, buildings, machinery, tools, technology, transportation arrangement, financial capital etc. These inputs are available with varying degrees in different geographical parts of the province. Appropriate combination of inputs may not be made available by the Public Setups due to resource constraints relatively less flexible public sectors procedures and rules, management system etc. Government may fill in its weaknesses and overcome constraints by offering partnership for increased production in specified areas and sectors etc. Normally Government organizations have land, buildings, machinery pertaining to wood carving, garments, agriculture light engineering, leather etc.
- These inputs may be offered for partnership to individuals, community based organization, chambers of commerce & industries, workers associations etc. Joint production units and number of skilled labor may be increased through training by Government. Common facility centers may be increased to accelerate production of other allied units etc.

Recommendations contd..

2. Inter-departmental and inter-governmental partnership may be developed to promote industrial production. Different departments and originations of provincial government and federal government pursue achievement of their specified micro level and selective objectives contributing to achievement of national objectives through a number of activities. A number of activities and outputs of one organization, department are used as intermediate input by another organization to achieve its specific objectives. These outputs may be act as primary, secondary and tertiary activities for production of other organizations. Scarcity of financial capital reduces working capital and operational expenditure to expand its production. Financial capital may be obtained from NEVTEC with matching physical capital and technology etc. Similarly BISP may be offered partnership to increase earnings of skilled labor to promote their employment in various sectors across the province.
- 3 Marketing Network may be established involving individual producers, small scale firms, community based production units located at distant areas with scarce resources to be invested on marketing and transportation of their products may be provided with platform to sell their products at competitive prices in national and international market. On average these producers sell their products in local market which has less number of buyers and offer low price relative to national market. Government may develop marketing network by utilizing services of its offices at district Level, provincial Level and by utilizing its social capital with other trade related government and non governmental organizations.

Recommendations contd..

4. Private- Public partnership may be adopted to increase production. In few Sectors, business, services, manufacturing etc public sector performs relatively less efficiently to private sector due to relatively less flexible rules, laws procedures comparing with rapidly changing market system., production technology, competitors, financial capital constraints, governments changing priorities insufficient formal incentive mechanism linked with performance, lag riddled accountability mechanism for inefficient labors, decisive less ness in officials, lengthy and vertical hierarchy of public sector etc. lack of corporate culture and profit induced attitude and indifferent behaviors.

- Thank you for
 - Patience
 - Comments and
 - Suggestions