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# **Agro-based Industry of Tharparkar and Barrage Area of Sindh: Solutions and Suggested Policy**

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## AGRO-BASED INDUSTRY OF THARPARKAR AND BARRAGE AREA OF SINDH: SOLUTIONS AND SUGGESTED POLICY

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### Abstract

In this study solutions and suggested policy of agro-based industry of Tharparkar and barrage area of Sindh are given, and it is tenth chapter of the Ph.D submitted in 2002. Purpose of the study was to give the complete picture of solutions and recommendations. On the completion of this study and in the light of conclusions drawn it has been observed that to further develop agro-based industries in Thar and Barrage areas, it is necessary for the Government of Sindh to take steps for local organization and indigenous knowledge and leadership. The awareness of rangeland and livestock by the local organizations will help in the enhancement of all other agro-based industries. The development of agro-based industries in Thar will boost Sindh's industrial economy. In order to alleviate poverty, it is also necessary that people be trained in the ways and means to develop their physical assets (land and livestock). In this way poverty will fall about 55 percent. For the development of Thar's agro-based industries two formulas are suggested as bellow: A. Alleviation of poverty = Local Organizations + Livestock; B. Development of Thar = Local Organizations + Livestock + Roads + Electricity. For the achievement of purpose Proposed Immediate Measures, Medium and Long Term Measures should be taken.

**Keywords:** Solutions and Suggested Policy; Tharparkar; Barrage Area of Sindh; Agro-Based Industry; livestock  
JEL Classification: D13;D18;D24;D31;D33;H24;N30;N50;Q15;P51;R13;R23

## CHAPTER-X

### SOLUTIONS AND SUGGESTED POLICY

#### I. Hypothesis

**A.** The Aim of Alleviation of Poverty Can be Achieved, if Local organizations (Indigenous Leadership), and Live stock are Encouraged by Providing Awareness to People of Thar.

**(Alleviation of Poverty = Local organization + Livestock)**

For the better prospects of Thar, we should improve agro-based industry. Main factors of this industry are, livestock, second, its sustaining trees, and grass plantation. Through these things, Thar can reach up to an industrial economy. Prosperity of any area depends upon the economic sources. And for every country or region these sources are different, because of different conditions of the areas. Thar is quite different from all of other areas, due to sandy dunes and scarcity of water, and so many others factor. Some factors are similar like in Denmark and some countries of Scandinavian, which were depending upon livestock as a reliable source. These are now days well developed in comparison of earlier conditions. This speed of prosperity and development shows that their future is bright due to livestock. Keeping in view development theories of different places which researchers and experts has given shows how the development can be brought, in particular areas.

Mostly all of them recommended that development programme experiences and research in particular areas and indigenous knowledge is the main measure of development.

Those agencies, which are working on subject development, should continue with their work and record their experiences of training and also carry out assessment of the effectiveness of their work. They should evolve some objects and valid ways of measuring the work of the objects. After one year participating agencies should meet for the review of the progress, in reference to these useful methods, which have been made in their follow-up work. These institutions should be available for training of trainee also and after that when their Programmes are evaluated according to objectives then in the light of experiences; Programmes can be re-framed and can proceed for the purpose.

Following examples can be taken:

- i). Tagore's Experiment in Rural Constructions
- ii). Experiences of Mitranikatan
- ii). Navajivan Mandal, An Experiment in Social Development
- iv). Friends Rural Center Rasulia
- v). Baroda Experiment
- vi). The Firka Development Scheme of Madras Provinces
- vii). Nivali Kanya Ashram of Kasturba Trust

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- viii). Gandhian Rural Service Institute a brief review of its rural development work
- ix). Ramakirshna Missions' Role in Rural Development
- x). Co-Operative Venture at Comilla
- xi). Rural Development Work at Peshawar Academy
- xii). Public Co-Operation in Rural Development, rural development in India and some cases of Somalia
- xiii). TRDP's work at Tharparkar
- xiv). UNDP, UNCDF, SPDC (2000)
- xv). Micro credit program of Grameen Bank Bangladesh and
- xvi). Progress of Denmark and Scandinavian countries.
- xvii). Baanh-Belli Tharparkar
- xviii). Aghakhan Foundation
- xix). Maruara Foundation
- xx) PVDP Islamkot

So, we are searching the theories and experiences of experts and in the light of these experiences work should be preceded forward. As there are so many experiences done on the subject development. We would like to give here some equations as a review.

*“An expert socialist “Lenin pronounced, his famous equation for development, namely, socialism = soviets + electricity. He did not realize that it was impossible to provide electricity to every future soviets of the world.*

*Pandit Nehru modified this equation for Indian conditions and he said, Socialism = Panchayat (local organization) + electricity, unless some other appropriate equation is developed for socialism, it is doomed to failure on the bedrock of electricity supply.”(1)*

*But for the Thar we give an equation that:*

**Alleviation of poverty = Panchayat (local organization) + live stock.**

As Thar depends upon livestock, which is only reliable sources of income generating of rural Tharies, So, if livestock is developed then Thar will develop and the produce of it would lead Thar into an industrial economy.

## **B. The Progress and Promotion of Agro based Would Lead Thar into an Industrial Economy.**

**Development of Thar = Panchayat + Livestock + Roads + electricity**

Tharies should be made aware and be motivated for tree plantation. This work can be done by NGOs with the cooperation of government

First step is that local organizations should be formed. Tharies should be trained for not cutting natural plants and not root out the natural vegetation during the cultivation of crops. They should be trained to divide their farmland in parts and some parts of it should be fenced by plants like ber, khejdi, devi etc.

This work should be done earlier than roads and electricity because both of them are concerned with government policies. By doing this fodder will be available easily then livestock will increase in Thar due to availability of natural fodder.

Second step is the road, which is concerned with government policy, but it is observed that in the government of C.E Gen. Pervaiz Mushraf, the road schemes are made and till 2003-2005 they are to be implemented. If these would be implemented then network of roads will spread.

Third step is electricity, which is also needed for better progress of industry.

To conclude Thar will be developed and prosperous. First of all small industry will take birth and after that large industry will merge.

### **Following results to be achieved supported by references:**

- i. Land reforms for eliminating rural poverty, being a prime instrument for the development of agro-based industries. (Table: 7.20, 7.22, 7.23, 7.24)
- ii. Creation of awareness among Tharies to use duly fenced farmlands for the purpose of fodder for livestock. (Table: 7.21, 7.22)
- iii. Introduction of micro-financing system for safety nets. (Table: 7.21, 7.24)

- iv. Bringing up livestock (animals within species; race, lineage; sort and kind) by producing fissile material and introducing short-term loans, on experimental basis. (Table: 7.13, 7.14)
- v. Steps for conservation of rangeland by planting indigenous and exotic plants and grasses. (Appendix-Ethno forestry, Table: 7.20, 7.21, 7.22, Reference-15 Chapter-II)
- vi. Training to understand the benefits of non-crops (un-sowed natural vegetation) and mathematical calculations. (Drought Presentation Chapter-II)
- vii. Thar as an industrial economy. (Example of Denmark Chapter-II)
- viii. Raising of income level of people (Commonly accepted)
- ix. Encouragement of Local indigenous skills and know-how. (NGOs working in Thar Chapter-II)
- x. Benefit to poor at grass root level. (Result of AKRSP Chapter-II)
- xi. Vision of a bright future. (Example of Denmark Chapter-II)
- xii. To provide real assets possession (land, and livestock) to the poor Tharies. (Drought Presentation Reference-15, Chapter-II)
- xiii. Reduction in migration of indigenous leaders, experts, and skilled people having know-how of the work. (Commonly accepted every where)
- xiv. Boost promotion of agrobased industry. (Example of Denmark Chapter-II)

## **II. Agro based industry**

### **A. Livestock: A Reliable Source of Income Generating.**

#### **1. Domestic livestock farming**

For improvement of livestock, we can take the example of Denmark, Australia, and Scandinavian countries; those were having in early stages, livestock. They improved livestock and its production, which lead them into industrial economy. Now they are much better for improvement.

Some suggestions are as under:

- a). Installation of fodder through planting natural plants and grasses.
- b). Planted folds around their farms.
- c). Motivation and awareness for growth of livestock and collection of fodder.
- d). Arranging health care facilities by giving training to local people who have got livestock more than 50 number.
- e). For training education should not be compulsory but insight should be there.
- f). Semenation (semen added in artificial) should be done on modern / scientific techniques.
- g). Better species should be introduced.
- h). Tannery should be introduced by modern ways.
- i). Cultural shoes should be modified according to need of cities.

#### **1. Fish Farming**

In Thar there is neither source of fish, because of lack of water. Near to "Runn" at the season of rain some water become stored, in that fish may be reared.

#### **3. Poultry Farming**

In Thar there is no farming of poultry but it can be successful, if implemented.

### **B. Dairy Products**

Milk, butter and ghee, are dairy products. Out of all these only ghee, is sold but in low price. Milk and butter have no market except in some rare cases and only in urban areas. Before 40 years there was market of furs in

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local market, due to local tannery industry, which is finished now.

Other production, which are not at this time in use but can be useful if introduced, these are cheese, and cush, which are used in Blochistan and cheese in cities of country. Following steps should be taken:

1. Preservation and packing of milk, butter, and ghee should be introduced.
2. Manufacturing and preservation of cheese and Cush should be done.
3. Search of market of cheese and Cush should be done.
4. Thread making simple machine should be introduced.
5. Bones of camels should be introduced, to those who use it for the substitute of elephant

### **Cush Preparation (Product of Milk)**

All Tharies make yogurt and take out butter from curd/yogurt. Surplus yogurt should be boiled, which Tharies are doing already to preserve yogurt, for one or two days. This boiled yogurt should be filtered by cloth and their residue should lie in cloth and hang it to dehydrate water after that this should be taken out to make round balls equal to weight of 10-20 grams. These balls should put in grinded salt to make a coat of salt around the ball. Then take out this ball and let them dry. After drying these balls should be collected and filled into bags they are ready for eating and sell. The price of one Kg is 60 rupees at Quetta Market. And it is also used in Blochistan and in Iran with keen interest. It was used in Thar in different ways.

### **C. Non-Crops**

For the improvement of non-Corp following suggestions are needed to implement. They may be reliable source in future.

1. Concept of garden should be in mind. (Think that their farm is garden)
2. Local people, with suggestions of catalyst bodies should select selected seed.
3. Seed should be sown, thinking that, resulted fruit is for only their children, but not for themselves.

Thinking that fruit will increase, in the form of fruits, vegetables, dry vegetable, all these will serve livestock, local people and people out of Thar. It is long term plan, but too much beneficial for off spring and for the environment.

Examples of such plants are Ber, Kandi (propos ginerasia), *Salvadora oleoides* (*Salvadora oleoides* (Khabar), *Capparis aphylla* (kirur), and *Acacia*, etc. these trees are important, but there are other plants, which do not give fruits but serve as fodder. Such as *Acacia*, babul, *Prosopis juliflora* (Devi).

All fruit full plants will serve in the form of small industry producing produce, as fruit, fresh vegetable, preservation of dry vegetables, Mitchell's etc. In long run this industry will lead Thar into industrial economy. All farmers will think themselves landlords of Thar having gardens like fruit farms and livestock farms.

### **D. Crops**

Crops are agricultural plants, which are sown by farmers but as we know that income source of Tharies is not only agriculture but also livestock (2). Thar without rain is desert. It rains irregularly (3) that is why it is not reliable source of income. Agricultural activity in the desert has reduced. Aware and vocal villager has started to consider it as subsidiary activity. (4)

Only in the rainy year agriculture is favorable for agricultural crops and then fully agriculture products are produced. But in other years in which famine and drought is there then it is opposite of it and a lot of saving and labor forces become wasted and the importance of agriculture is in declined almost in all over Thar. In these conditions it is worst of all the other income-generating sources, which are ritually done by the Tharies.

Selected species of small melons and watermelons should be sown as non-crops (un-sown crops) in the farms, which are folded with thorn plants.

Farm, which is folded, should be divided into parts. As 1/4 for crops, 1/4 for fodder herbs, shrubs and trees, 1/4 for un-sown water melon and melon, which are small and are used for vegetable and 1/4 for fruited plant/trees like ber, kandi (propos ginerasia) and other recommended trees.

Grafting and cutting sweetening methods should be applied for better production. Forecasting for raise of prices of commodities should be before the month of May. So people should be able to prepare for that variety commodity, e.g. rate of guar, melon seed, bajra, mong, til etc.

For this forecasting of rain should be done.

### **1. Fruits and Vegetables of Crops and Non-Crops**

#### **a). Over all Suggestions**

- (1). They should be cultivated using modern methods and technology.
- (2). Selected species should be re-searched.
- (3). Products, for medicinal and nutritional use should be advertised.
- (4). Kunder is very important for qushta-e- mercury.
- (5). Green and dry vegetable production should be encouraged.
- (6). Its fruit should be advertised for commercial purpose in the markets of. Karachi and other cities/ towns.
- (7). Surplus production should be advertised and exported for foreign exchange.
- (8). Cold storage should be provided.
- (9). Transportation / communication should be improved.
- (10). Water facilities should be improved for people.

#### **b). *Salvadora oleoides* (pilo)**

- (1). Owners should save at least trees, which are in private land and not permit to others for use without cost.
- (2). Selected species should be cultivated in the boundaries of farmlands
- (3). Their seed should be collected for oil crushing.
- (4). Cold storage necessary for its' preservation should be arranged.
- (5). Dry fruit and fresh fruit should be advertised in big cities for search of market.
- (6). Transportation, Communication, Gas, Drinking water should be arranged.

#### **c). *Capparis aphylla* (kirur)**

- (1). They should be looked after for the purpose of Fruits and Medical Purpose.
- (2). Farm should be fenced by plants and to be saved
- (3). Market should be searched for fruits as vegetables.
- (4). Roads and Transportation / communication, and water facilities should be provided.

#### **d). Watermelons**

- (1). Selected seed should be sown.
- (2). Transportation/ communication should be improved.
- (3). New market should be researched in cities.
- (4). Cold storage should be arranged.
- (5). Salted Seed be packed and should be introduced for sale in big cities as dry fruit just like other seeds are used.
- (6). Flour of pod of khejdi (propos ginerasia) should be introduced for Paratha, sheermal, roti, Cakes, Rice, kheer, common bread etc.
- (7). Awareness of modern methods for the more production of fruits and taking seed out of fruit quickly should be given.
- (8). People involved in making Gur should utilize matter, which is destroyed at the time of taking out seed, by modern methods.
- (9). Training should be given to make Gur from fruits.
- (10). Outermost inedible part should be used for dry vegetable.

#### **e). Melon**

- (1). Cold storage should be provided.
- (2). Modern method of preserving and drying should be introduced.
- (3). Dry fruit should be introduced in cities as a dry vegetable and fruit also.
- (4). Communication/ Transportation should be arranged.
- (5). Awareness for preservation of vegetables should be done.
- (6). Better varieties of seed should be collected for seed bank as a loan
- (7). Low water demanding method should be introduced e.g. plastic bags should be kept in root half foot wide and two feet long to save water destroyed.
- (8). And mutca (Pitcher) irrigation should be introduced
- (9). They should be sown as only separate variety.
- (10). Rainwater should be collected in water tank at farms land made of cement and it should be used for plants and drinking at the time of demand.
- (11). Fixed calculation should be done for quantity stored and quantity demanded.
- (12). Cattle dug should be utilized for fertilizer in the pot of plant, which is made of plastic bags.
- (13). Awareness for planting and saving it from deficiency of water should be done.

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**f). (Hanzel/tooma/, meho)**

- (1). In cities production of dry vegetable should be introduced.
- (2). Transportation and communication system should be improved.
- (3). Cutting and drying methods should be introduced.
- (4). Local market for purchase and further sell in cities and towns should be encouraged.
- (5). Shortage of water can be covered up using the methods mention in melons.

**g). Guar Phalli (Pod)**

- (1). Cities market should be introduced to producers.
- (2). Good quality of seed should be introduced to farmers.
- (3). Surplus vegetable should be dried up at higher rate.
- (4). Dry vegetable should be introduced to big cities for dry vegetable.
- (5). Salted dry phalli are also eaten as refreshment like finger chips in cities or at the place of namkeen (Salty); it should be introduced in cities.
- (6). It can be introduced in cities through sales that will sell it in buses, hotels, and retailers.
- (7). Transportation/ Communication should be improved.
- (8). Estimated rate should be introduced which are in favour of farmers and suitable for consumers.

**E. Edible Oils**

This depends upon agriculture so, it is fail and there is no better prospect of it.

**F. Mills**

These will come in existence in small scale first, when there will be cheaper raw material for production, which will be produced only by promoting agro based industry.

Now I suggest a redesigning long-term policy to continue the benefits in future.

**III. Suggestions for Specific New Programmes as Policy Measures****A. Policy Measures****1. Establishment of Village Organizations**

It is important to establish village organization. Such organizations should be developed about the concept of saving, where every member saves a certain sum of money on a weekly basis or seasonable basis and deposits it in a collective bank account. Again AKRSP's experience in this regard should be studied. (5) "While the Indian catalyst freely uses community organization, group work and extension services as these methods of work". (6) Chinese communists and Japan co-operations are useful approaches, which preferably demonstrate the viability of following this principle work out to suit their own peculiar settings. The Somalia Experiment further illustrates their practical translation in similar and comparable context. The testing under the Dandzai project is a more recent experiment which being watched by experts both national and international with great interest and keenest (1996). (7) The village organizations become successful and work well, if they are given program on the bias of local needs of the people

Two things should be kept in mind for the program for the use of local leadership.

- a). We should not go to village with any rigid pre-determined program while developing welfare activities.
- b). Participant should be local this is an example of "Ramakirshna Mission's Role A case study". (8)

We can take example of Rural Development work in Ghandigram Rural institute in which panch or sarpanch (hereditary village leaders) and other are made the member of committee and it remains successful. (9)

**1. New Approach for the Livestock Production Concerned with Artisanal Program.**

For this following steps should be taken:

- a). There is need of study of artisans produced, goods, carpets, rugs, blankets, and leather made goods, cultural shoes

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that are based upon Agro-live-stock.

- b). There is also need of under standing of: the preparation manner, expertise, middle man activity, procedure and ways by which loans and advances are given and recovery is made, limitation of training, financial inputs by middleman, and advantages got by Tharies.
- c). Study should be done to know the relationship between the artisans and middle main, for the improvement of production and introduction of machines, credits and new demand able design patterns of production.
- d). Helpful catalyst body should be sought.
- e). Local organization should be encouraged and motivated.
- f). Micro credit program should be encouraged following the example of Grameen Bank Bangladesh, TRDP Tharparkar, Baahn-beli, AKRSP and Tagore in Bengal etc.

### 3. Marketing of Livestock and Dairy Products.

From the detailed study we come to know that Thar is lacking roads, which seems a main part of infrastructure facility. It makes the marketing of milk, butter, and ghee impossible. And also it makes difficulty for the produce from animals e.g. blankets, rugs, wool, shoes locally and traditionally produce and animals. However, there seems much demand for cottage cheese in the urban areas of Pakistan and Cush in the areas of Blochistan. But for the production of livestock in Punjab and barrage areas, there is demand due to given organized marketing and production. But there is no market of similar items produced in Thar.

For cheese and Cush manufacturing do not require sophisticated technical how-know. Cottage cheese and Cush are easily handled when they are packed. These products are so easily to be transported by four wheel drives vehicle in large quantities and these do not get rotten and spoiled.

For this production research should be done and if result is fruit full then a massive technical assistance should be given along with small loan to farmers. There should be standardized brand of cheese and Cush and its packing .For research TRDP, Baahn-beli and other concerned NGOs and other research institutions should be approached and other research institutions / universities should be given topics of research for further research.

For other products like milk, butter, ghee brand and packing should be standardized. For tannery, leather products and wool products same practice should be done. When these things would be available in abundance then income level will raise, poverty rate will alleviate and these things would lead Thar into an industrial economy.

### 4. Tree Plantation for Commercial Purpose.

It is concerned with agriculture sector, and includes in non-crops. This is on the second priority of our subject. It may be the reliable source in distant future. There should be introduction of tree plantation for commercial purpose on individual farmlands. But for this program there is problem of choice of trees, the season in which they have to be planted, the area from where they have to be brought, the technical suggestions needed for their planting and maintenance, are important aspects. This may be more successful like in India arid zoon; people are using tree plantation for commercial purpose result is better than cops are.

For this purpose we should initial with local trees like, Kandi (propos ginerasia) Ber (*Zyzyphus rotundifolia*), Capparis aphylla (kirur), (*Salvadora oleoides* (Khabar), Gugrani etc all of them will give production in the form of fruit, vegetable and others forms. Other grasses e.g. sinn should be grown by layering/budding/bulb methods.

Except these plants other stranger plants should be introduced with the assistance of AGRS and the IUCN. Government research institutions such as the PFI and Forest Department may also be useful. Example of such a introduction is in the Northern Areas AKRSP has been instrumental in getting farmers to plant over one million trees, often in harsh climatic conditions. The farmers will soon reap benefits of these plantations. (10)

### 5. Human Resources Development and Training

Tharies should be trained for self-help services such services will help to develop capacities for self-determination. As Tagore says, “ to re-assert themselves, in a bolder social order.” The services, which enhance the values of the human material thus, come first. Next comes the program of training. Training in production both, in agriculture and in animal husbandry provides a specific form of “ Social development” input. For the training experiences of Baroda project, Rama Kirshana Mission, the villagers of Narendrapur (Rama Krishna Ashram) can be replicas. The reasons of success are so many but some of them are training of workers, close contact of the catalyst with the people, organization of social activities, development of local leadership and early financial

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support. (11)

Women are instruments of social change. Participation of women is useful in most of the programs. It is observation of "Manila Manual" and other voluntary organization, working for women welfare in India and example of Grameen Bank support programs for women.

Similarly youth are the symbols of vigor, strength, mobility and innovation. It is experience of "Yuvak Mandal, India".

Another group of rural community whose participation is essential in development work consists of older people who enjoy a better status in rural community and have plenty of free time. There is need for providing some useful occupation combined with recreation for these senior members of community. Their experience and status can also be utilized for programs involving initiation of social and economic changes in the villages. Innovations, new programs and ideas coming from the senior members of village community will be found easier for acceptance and implementation. (12) We should also take initiative in utilizing this group as the initial of change. A group should be trained for the development programs of Agro based industry in Thar. For the trainings purpose, the workshops for two days monthly should be arranged as TRDP is doing. (13) But trainer should be expert local and trained himself.

## 6. Promotion of Local Skills

There are so many skills already in Thar which they possess. For example owners of livestock deliver these skilled services at their village and suggest the people in treating animal's diseases. At this time people treat their animal by old traditional methods with the suggestions of local expert. Semenation (semen introduction into female by artificial method) of horses is a nice example, of local experts, and get fruitful results. Such a people should be trained for the health care of animals, with collaboration of local village organization, on suitable charges of fee. In this way some suitable people should be selected for the planting of suitable local plants. This entire thing can be done with the help of local organizations. Organizations of these should be given training and suggestions and expertise of local people should be considered for the betterment of the programs. Result of these skilled men should be replicated

## 7. Awareness of Government Programs

Catalyst bodies working in Thar must be aware of all government programs for Thar. These bodies must organize its own programs in such a way that they can complement the government inputs. These catalyst bodies must lobby with government programs to help in complementing. Properly example of Somalia may be taken for promotion of different activities planned and supported by government, donor agencies as well as on basis of self-help services to local organizations. All this was due to awareness realization; self help determination and public support (14). We also replica their experiences in Thar for the promotion of agrobased industry, and infrastructure programs like building of roads and electrification through village development committees. These catalyst bodies should be pressurizing government functionaries for taking up and resolving these issues.

Lobbying of these catalyst bodies may be effective only by if it is done with figures, proposals and facts. At this time such a catalyst bodies which possesses know-how about Thar social and economic conditions and can present development alternatives are only TRDP, Baanh-beli PVDP and from government side only SAZDA.

## 8. Choice of Selection of Beneficiaries

It is observed that there are three types of beneficiaries in all over world. It is observation in Thar too, they are:

- a). Those who are quickly able to understand the objective of the program and get ready to participate,
- b). Those who need convincing and support; and
- c). Those who need too much financial help and time.

We should ignore the last category completely, and should come in contact with only first category only. When first category started working the result of it will encourage the second and then third should be dealt and supported. The programs should be given with realization of that first farmer's organization should be there with fundamental principles, these are:

- (1). Self-reliance and unity among the peasants.
- (2). Comprehensive approach to Thar development.
- (3). Development of local leadership with a spirit of patriotism.

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This types of work is experience of Tagor in Bengal, Cooperative venture at Comalia and experience of (Bengal) Santin Niketan which has blossomed into a world famous institution from a very small beginning. (15)

### 9. Research.

For the development of Agro-based industry, study should be carried out for the research of different fields in Thar, for instance:

Live stock growth, dairy products, fodder production through improvement of natural environment, plantation of Zerophytic plants and grasses, demographic, social and economic situation in Thar, government approach in development of the subject, social services sector, indigenous knowledge and agricultural activities in the Tharparkar. For more details of it, some points, which are taken from inter-net, and are concerned, with the subject are given below:

The proposed study intends to explore the relationship between Indigenous/ local knowledge, agro-economic behavior, and social relations in area of Thar. Anthropological in approach, the study should be conducted in the all areas of Thar to understand how farming behavior is linked to indigenous knowledge of agro-economic conditions. The research will:

- a). Identify traditional and new knowledge patterns and examine how these influence agricultural behavior and decision-making
- b). Investigate differences and linkages between traditional and 'scientific' forms of knowledge
- c). Examine peoples' perceptions, ideas, experiences and practices associated with soil types, plantations, uses of water, post- harvesting activities, etc.;
- d). Examine cycles of agricultural production, linking these with seasonality and then investigating how these might be correlated to the human life cycle;
- e). Investigating how local, socio- economic and political as well as gender relationships influences the generation, innovation and transmission of different forms of knowledge.

Study should be carried out for the research of comparable and similar conditions like:

- (1). Live stock producing country Denmark
- (2). Self help reliable country Somalia
- (3). Result of harsh conditions of NWFP for plantation.
- (4). An example of ethnography in Indian Thar.
- (5). Socio- Economic Study on the Dairy Cooperatives in Bangladesh

This research proposal intends to undertake a phase-by-phase investigation into the possibilities of setting up dairy cooperatives or other agrobased industry in the famine prone of similar or related conditions. In the first phase, a survey would be conducted of past experiments in dairy cooperatives and other agrobased industries. The second phase should be involved testing out a cooperative model.

Replication of these with some alterations recommended by researcher for Thar should be done. Managerial support for identified programs should be their existing know-how to Thar conditions. Such researchers, experts should be sought from those; if they are not available then they should be borrowed on professional basis from other organizations, which are well known and reputed.

### 10. Capacities and Capability of Catalyst Bodies Working in Thar at Present

At this time in Thar government is working but its work depends upon political situation and programs such as selection of government jobs, development programs like school, wells digging, financial assistance and loan, are depending upon political leaders that is why disunity spread in Tharies. They fight upon, so many issues, which are intentionally produced and intentionally not decided due to political dis-unity.

In olden days there was strong local organization system which was better and recommended at this time by all catalyst bodies working all over world. But the use of it was wrong also due to caste system and due to some other reasons but it was better too. At this time it is not so strong but there is need to do it strong. This system will prove, fruitful as catalyst body for Thar in future. At this time some catalyst bodies are working, lots of them are on only papers, wasting time and money. Their experience is not on screen so it cannot be suggested about them.

At present time there is need that such catalyst bodies should be free from political pressure, caste

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system, race and tribe system and should be impartial totally aiming that this organization is of Tharies and only is for development purpose of Thar. Such catalyst bodies should be sought and prepared to get ready for the objectives. But since 1987 only TRDP was working on this base aiming that outer managerial source will be struck off after maturing, awarding taking responsibility of this difficult job by local people. So in future this NGO will be handed over to local Tharies when they will be able for it.

Now days this NGO is handed over to Tharies in the name of Thardeep and it is registered. It has got its experiences and not need more finance for experiments but need experts for planning and analysis for further programs. It is capable of doing to much work. Baanh-belli is also working better on the other hand. If other bodies they want to work then they also should be sought. But help and cooperation of government is must, without it, this cannot work properly. Village organization should be managed. Government should provide facility for village organization only in registration as NGOs. Present government system is also model of the same system. On the basis of it, the selected persons are the member of organization and have to work as local government and are same like NGO. But difference is that in this people are not tested properly as happen in NGOs and they see the expertise in the work. But this system is better if implemented with full awareness and knowing know-how.

### **11. Home Grown Package of Reforms**

"The base scenarios has highlighted that in the absence of implementation of strong and wide ranging reform agenda, poverty will continue to increase rapidly in coming years. But if Pakistan is able to develop a comprehensive home grown package of reforms and implement it in the context of modern term programme of balance of payments support by the IMF and other international donor agencies. That include both new funds and a second round of debt relief, then the prospects for faster growth can improve significantly with the concomitant implementation of a lower rate of increase in poverty. When people have some assets and job opportunities and house hold members are skilled, educated and healthy a minimum standard of living is attained and poverty is eliminated.

Overall, 31 percent of the people of Pakistan lived in poverty in 1996-97. Women can face all kinds of cultural social, legal and economic obstacles that men, even poor men do not, so they may be encouraged. If rural house hold posses physical assets (Land, Livestock) then the incidence of poverty falls by as much as 55 percent. The informal economy appears to represent almost 50 per cent of the national economy. Land reform must be included as a prime instrument for eliminating rural poverty in Pakistan. Implementation of land reform will fundamentally alter the power structure in many rural areas, giving the poor a greater voice. If it becomes clear that the government is catering to particular interest groups, then quality of economic government becomes upset. Government must aim to improve the human capital endowments of the poor, here by empowering them in their struggling against poverty.

The higher fertility rate of women in poorer household implies both larger families and larger dependency ratios, which is a contributing factor to poverty. Village electrification has been identified as a key pro pooper service. It not only improve the quality of life of rural household but are enhances income-earning opportunity in the agricultural sector and cottage industry, and leads to significant cost saving in lighting fuel. In summary, it is evident that there are wide gaps in the coverage of Key pro-poor services such as primary education, prevention health care and village electrification. Federal government must commit itself to allocating 20 percent of total public expenditure to social services." (16)

### **12. Types of Social Safety Nets**

To be effective social safety nets must be designed on the basis of under standing of extent and nature of poverty.

As such there are generally at least three types of Programmes. The first is long-term financial assistance to those who are more or less permanently unable to provide support for them through work; that is, those who are chronically poor in this group. Second type of programme is designed for those who are able to work, but whose incomes are low and irregular. The goal here is compensates for low income and ensures adequate consumption during stock seasons of great important in current context is a third type of programme. It is for people who are normally capable of earning adequate incomes, but who are temporarily unable to earn a living because of shocks or downs turns in the economy.

On the basis of these Programmes micro credit should be given to people who apply for is ready to use for income generating source. (17)

### **13. Overcoming the Major Obstacles to Tree Planting**

The following material is taken from inter-net service and with somewhat consideration according to situation of Thar is given as under:

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To plant any crop anywhere successfully, four sets of criteria have to be met, they are:

a). First the natural environment must be suitable for crop growth. The availability of water, temperature, and soil type are crucial variables.

b). Second, the economic environment must be conducive in terms of providing resources for meeting the expenses of planting, culturing, harvesting, and marketing the crop. The availability of land, labour, and capital must be considered, as well as the condition of transport facilities and markets.

c). Third, the social environment must be favorable, which includes examining how the distribution of resource ownership, production relationships and the ultimate distribution of benefits from the crop influence incentives for growing and distributing the crop. People have to perceive real benefits for planting and caring for the crop.

d). Finally, technical expertise must be available in terms of the technical operations themselves and their management at the scale required as under:

(1). Depending on the crop, whether an indigenous or an exotic species, technical assistance is found not only from outside specialists but also from the local people themselves.

(2). Depending on soil depth, moisture availability, nutrient status, and the presence of iron-pans, techniques and some species for the reclamation of these lands are known. Obstacles to tree planting are social, economic, and administrative rather than technical or environmental. Rehabilitation of such lands must be approached on a catchments basis. Forest Departments, the Central Soil and Water Conservation Research and Training Institute are treating many areas, with support from various assistance agencies. Probably the most significant contribution to reducing further degradation would be adequate fencing and prevention of grazing. Where this has been feasible rapid invasion occurs by grasses and woody species, including the naturally common *Acacia nilotica*

This does not imply that improvement and local refinement of the establishment techniques should not be pursued.

Indeed, for every major afforestation site type in the Thar, there are four technical areas in which further work is required to maximize tree survival and growth and to calculate the economic feasibility of tree planting. These include:

- (i). Correct choice of species and provenance.
- (ii). Development of adequate protection methods.
- (ii). Determination of optimum size of nursery plants for field establishment.
- (iv). Determination of methods of management and yields of products especially in mixed crops.

#### **Example of Bubble's Benefits**

Every part of the ubiquitous babul (*Acacia arabica*), including the two-inch thorns is put to use. Its twigs are used for hedging. The omnivore goat eats its leaves and pods. Its wood is used as timber and fuel; short lengths of babul/ twigs are used as toothbrushes, its thorns as pins for fencing the field and houses, and its fragrant flowers to adorn women's hair and to make garlands in India

### **IV. Measures To Overcome the Difficulties and Failure of Agriculture**

#### **A. Agriculture**

In drought following measures should be accepted and adopted to overcome the difficulties and failure of agriculture.

##### **1. Forecasting of Rain**

Such an arrangement should be done in which forecast of rain becomes confirm. By doing this Tharies would become sure about rain that this year rain will come and they would be prepare for agriculture and no farm will be left without agriculture. They could use their farms with full concentration for these purposes and they will get full production. But when they would be informed that in this year there is no rain and famine and drought

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will come then they would not do agriculture. In this way they will save their seeds, fodder, labor force, animal labor, which are going to be used during farming. They will also save, that money, which is expended during farming. That is about 50 % of their income got from the crops not including labour in cash and kind but they invest a lot of but income is not enough.

In support of this argue, expenditure to overcome properly and exactly is very difficult. But as the author himself is also Thari and also remained in touch with farming, have observed the difficulties of drought and facilities of rain. Now being a researcher interviewed the farmers and compiled questionnaire in tabulation form. A simple calculation is given as below:

In agriculture mostly all members remain engaged fully and some times partially. People remain engaged in this work more than 120 days but approximately average is taken suggested by farmers themselves and they do labour daily average 10-hour. If we calculate the days of labor for this work along with expenditure done during farming and compare this with the income then it is equal to selling price (price of total production).

In the light of above discussions it is concluded that Tharies don't become prosperous because of being not informed about rain. For this forecast of rain is must. If there is forecast then agriculture gives much production. Other wise it is lottery and depends upon luck of Tharies. When they will be informed, and then they will be prepared for farming and in case of no rain, they will save the same time and they will do other job for income generating. In this way they will earn more and after some time they will be habitual to do other work and they will prefer that work which is profitable for them. In this way they will select other better jobs and will become more skilled man. When they will see that is better than they will try to improve quality of their production and quantity too and will become prosperous than before

From above discussion and conclusion forecasting is important and this is first and main reason all the other reasons are secondary for agriculture of Thar. Process of artificial rain needs more research. In some areas of Nagarparkar and Vat under ground water can be beneficial for agriculture by taking efforts.

## **2. Use of Superior Quality of Seeds**

This is an age of technology and science. In this time such seed should be used, that re-researcher passes. Sindh Agriculture University Tando Jam should help in this matter. Seed should be brought to experts for analysis. Experts should recommend those seeds, which gave more yields per acre, and at the same time need low water or they ripen during one rain or two rains.

## **3. Useful Method of Ploughing**

For ploughing purpose tractors will prove better, for the support of tractor we will give another example that, by using tractor people become able to cover land earlier. Difference of dates gives difference in production as mentioned above. From above examples and discussions it is clear that tractor is better.

## **4. Financial Support**

For every thing finance is necessary. If they will be supported financially, but only in kinds and at their doors then they will save money and time to get these things at their door. Another thing is that they being poor can sell these supporting things e.g. seeds etc. at shop of town. Giving these things become protected and will be utilized in proper way up to 90 %. But if they will be supported in cash then, there is possibility of using these things not for purpose but for other necessities. Different finances supporting institutions should participate in this job.

# **B. Physical, Social and Economical Factors**

## **1. Supply of Electricity**

In Thar electricity can be supplied to each village, such a capacity is in grid stations over there. It should be supplied in small villages as soon as possible, if we want to develop Thar. Electricity is cure for lot of diseases. Lot of problems will be solved due to this by taking some efforts. This will prove better for agriculture also. Those areas in which water is easy to take out by tube well running by electricity; in those areas agriculture can be improved. And in other areas where water is not at low depth water can be pulled out for drinking and other purpose. The soil of all Thar is not able for agriculture by tube wells. Only flat land can be cultivated. So, in this way in every village only few farms are flat and these flat lands will be cultivated. On the other hand those who will not cultivate the lands will save the time that they consume during pulling out water and will utilize this time for another work and will earn more than before. This is very important factor for development of agriculture and other activities. In Thar from Nabesar, Chachoro and Mithi light can be supplied; such a capacity is in it (Appendix -17).

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## 2. Promotion in Export Programme

Those commodities, which are expensive out of countries, should be recommended to Tharies to be exported. In this way Tharies will get such rate of commodities and will try to develop it more and more.

## 3. Storing Facilities

Storing facilities should be promoted in Thar. People have not proper arrangement of storing, different commodities and agriculture production. People store grain at their villages in small quantity, because they cannot store it for much time. Insects destroy it in the period of one year. Grasses collected after season is over, in dry shape and in different varieties. These are stored by old methods and when it rains this gets wet and becomes destroyed. Fruits e.g. watermelon and melon cannot be stored for much time. These things need more facilities for storing e.g. electricity, cold stores etc. If there are storing facilities and light is there, then watermelon can be stored for long time at the same time melon and its products can be stored and preserved. And these commodities may be used for export out of country and also in country too. For this purpose main thing, electricity is required. If it is supplied then preservation of fruits becomes easy. In villages committee should be formed and workshops should be done at villages, time by time. In doing this people become motivated after motivation workshops should be done there, to teach them, how to store one thing and where, and what things can be stored and what are not able to be stored.

## 4. NGOs Support

Some NGOs are working in Thar. When they are working for the welfare of Tharies. Then it is further expected that, they should work all over Thar, with full concentration. They should arrange their staff in better ways. Staff should be more educated and experienced. Such a people can work in better ways. Creative minded persons are needed in NGOs. NGOs can support the people better in comparison of government. In government jobs, people become careless due to service security, political pressure and tribes/caste system of Thar. Due to these factors, they may be irresponsible in comparison of NGOs. But in NGOs, it may be in proper ways with conditions that the head of NGOs is faithful and want to serve honestly. If he is doing this work will proceed more and more and better result will come in front. In conclusion NGOs will work with full concentration for the better life of Tharies and prosperity of Tharies.

## K. Water Facilities

Government should do arrangement for all the villages. This arrangement can be done by both ways, one by pipes from barrage areas and second by tube wells. By tube wells can be used for agriculture up to some extent (SAZDA feasibility). If above mentioned work is confirmed then employment for some farmers comes in existence. And it helps up to some extent in every activity. It saves time, reduces the tension and one gets fresh and healthy with the help of water. At last from above discussions we reach in conclusion that water is very important factor for the Tharies prosperity. It should be facilitated to Tharies.

## 5. Education

In education technical education is must. This is age of science and technology. Therefore technical hands have good future. Now days there are no government jobs. If one is technical hand then he earns some thing, other wise it is very difficult to earn in this age. Technical hand is also very useful to agriculture field. He can introduce new methods, which are useful for and can motivate others for the same works. In this way agriculture may be developed.

According to needs new course should be designed. Keeping in mind situation of Thar, technical needs for Thar, standard of classes, out put of the subject, controlling of population increase and growth rate of population.

## 7. Facilities of Roads

Roads are necessary for development of Thar, seventy- percent problems will be solved automatically by reaching roads network.

## 8. Supply of Gas

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Gas cylinders of walk gas should be introduced and people are motivated not to cut green trees and shrubs then people at least will try to reduce to use the trees.

### **9. Cultivation of Khejdi (propos ginerasia) Plants**

Khejdi /kandi plants can be planted with the concept of garden. This plant does not require more water of rain. It can remain without rain for many years giving fruits. The leaves of this plant are used for fodder for goats, sheep, and camels. The fruit of these are called pod/singri and this singri (pod) used for many purposes.

Kachri (chips of melon) and singri (pod) are used for vegetables these vegetables are nice. When seed is near to ripe at that time it is used to eat as a fruit. For singri in last stage ripens and becomes dry. This is also used for eaten purpose for human being. Some people collect this dry singri, which is called khokha in Tharies language and after that grind it and separate the seed out. This grinded flour is used in bread, which is very testy and delicious. Such type of bread the villagers make. If such type of powder is taken out by this fruits and if it is advertised and used for other food, then there is possibility that it may be sold at commercial bases in cities.

Very minutes things which are doing to be sell in cities due to popularity by advertisements then why not it. Another use of this is dry vegetable. Tharies boil singri and after boiling make it dry for preservation. After going to be dry they collect this and use for vegetables for two years also. This system can be improved and dry vegetables can be sold in cities on commercial bases. All the above-mentioned form along with leaves is also used for fodder for goats, sheep & camels. Average one kandi can give 3 mounds leaves and at least 3maund singri. Leaves are sold at least Rs. 2.50 /kg and Rs. 5/kg singri said villagers. Average Rs. 500 minimum income may be from one tree.

At first time to grow it and save it is difficult. But some method should be utilized to save its seedling for only one year in the shelter of trees, herbs, thorny plants, or saving it in any way, which they think suitable at that time. If one time these plants are able for production then they are long life plant and can live more than 100 years also and will continuously give production more and more as they become older and older.

## **V. A Vision for Collection and Disbursing of Funds**

### **A. Establishment of Bank in Thar**

It will be the best in the interest of Thar and Tharies that a banking system be introduced in Thar, based on the idea of the micro financing. Since I have (writer of this thesis) my roots in the Thar and certainly know that there are very bright possibilities of to start such a bank. Experience in various countries and especially in our defunct Bangladesh has proved effectiveness, of this system for boosting the system and boosting the development in life style of poor people.

I have a certitude that if poor people of Thar are encouraged and deepened about the system, each and every member of all Tharies families can afford to save rupee one per head per day. I am fully aware through the personal links that a Thari child spends an average amount of rupee 1-5 per day for the purchase of sweet and chhalia (nuts).

A bank establishment in Thar by government or any NGO agency can issue deposit slips of not less than one million rupees per day. This amount is general on the basis of approximately population of one million in Thar villages. However introducing this system requires creation of awareness among Tharies about its benefits. A homework proper loaning and constant advertisement, with immediate benefits such as interest rate and loan facility would be needed before acting on this fruitful scheme. Some active NGOs have successfully launched such a project and Tharies people joyously participating and benefiting through this system in their project areas, one example of such a scheme is VO of Chelhar. This system is somewhat different from my point of view but the base is approximately same.

Grameen bank of Bangladesh is the best example of success in this attempt. I have been told that in kharadar, Karachi, Ismialy Community success fully started a Massala Society with less half rupee in nineteen fifties and now bank grant huge amount of loan to community members for business purpose.

In the initial stages in any government bank A/C should be opened. In every village there is no bank. Some social welfare organizations/ NGOs should make arrangements of keeping this money for one month before making arrangement of deposition of it. Such a practice is happening in Thar in the areas where active NGOs are working. People are getting benefits from this policy

### **B. Disbursing of Funds**

In fact, Thar population can be divided into three categories:

1. Very Poor class
2. Middle class and
3. Rich class

The rate of deposit and facilities of courses should be different. If people fail to join to understand and cooperate then government may impose a fine on the fixed amount as a forced tax then may be given the interest and they may be encouraged to start small business by granting them loan, as per their skills and capacity.

There should be policy that there are three accounts in the Thar Bank. In this bank, the bank will give interest on deposition; at the same time Tharies should be given awareness of deposition. People should think that it is forced tax.

For the poor class the account should be separate and they should be given interest more than normal rates, in this greed people will deposit more money. Rich class should be given only list of the deposited amount annually. This account should be in bank at least for five years and Bank should give normal rate of interest.

This amount should be given to NGOs on interests, which are responsible at the normal bank rate. NGOs should use this money for their projects, which are income generating e.g. loaning to farmers, ladies and labour for livestock, raw material for production to utilize own skills, etc. This type of practice is happening in Thar by some active NGOs, in Bangladesh and in mostly all NGOs but collection is not forced. Middle class category should be given more interest

By doing this Tharies will try to deposit more and more and will decrease their useless expenditures on fruitless habits. When they will come to know the benefit of saving as an earning then with the short span of time their deposits for interest money would be enjoyable.

Poor category should be given loan at cheapest rates for only income generating purpose following the example of Grameen Bank of Bangladesh, and working of active NGOs in Tharparkar and in others studies, which are given in this study in details. This category is in need of more attention and awareness. It is already described that they should be given cheapest loan. Another thing, which is main and mostly is miss used by authorized people is utilization of aid which government, NGOs rich people of Pakistan, or any other country gives for the distribution into the poor. This amount in real case does not reach to real poor persons. The entire amounts received for the poor of Thar for drought and famine conditions should be deposited in the account of Thar Bank in favour of poor category. In this way the amount of this category will increase and will multiply soon. By this practice more amount will come and more chances of progress will increase for poor category.

### **C. Vision of Giving Loan to Poor in Proper Way**

There should be policy of giving loan to poor in proper way. It should be on their deposit ratio. Those who deposit per head more will get more loans for income generating purpose at cheaper rates. Those who will not give loan back with in time they will give more interest as late fees, by doing this much money will come. After that advertisement should be done to receive more funds for Tharies from donors.

If middle class category takes loan from this fund then interest rate should be at normal commercial bank rate and if rich category takes loan from this loan their interest rate should be higher than middle class. But it should be made compulsory for distributing authorities, to make sure that poor are on merit base and if representative of poor allows giving loan to others, then it should be given, otherwise should not.

In this way a lot of money will be deposited. After that a separate Thar Bank should be managed on private basis. Every Thari who deposits money is shareholder. There should be share one for rich, double for middle class and four times more for poor. More amounts are given by funding agencies to poor as aid that is why their share should be more than others. The bank can be supported by the relief funds amount in order to multiply the deposits. Banking rules for poor people of drought trodden areas must be based on the divinely attribution of kindness. At the same time development programme, like water facilities, healthcare, education, roads, marketing facilities and other day-to-day problems of awareness and development progress should be done from poor' fund by consulting them. One more important thing is that labour charges for all the development Programmes should be 4 times higher than normal charges for poor, for middle class double and for rich people should be normal. Because of that funding agencies give the fund for poor. This fund may be utilized into poor by loans and labour wages. At the same time it can be distributed in the accounts of poor as a relief fund. This act will eliminate poverty and they will not treat themselves as beggars but they will think that they are working and getting wages.

Secondly, that those who are really very poor will do work as a labour and will get more wages. Those who will be not poor avoid to do labour work and will be unable to receive the money from the aids given by funding agencies.

### **D. Vision for Students**

The school and college going students should also be given chances to earn money for wages during weakened or only in holidays with good wages. In real sense this will be a sort of aid/ scholarship. In this way those who are really poor will be ready for labour work and will get their rightful earning and they will not be burden on their parents. They will also develop habit of working. This will be encouraging step for those who are not studying

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or working. It will result in encouragement for education and children will pressure their parent to make their admission in schools and colleges and incentives should also be considered for such young people. Those who get good marks in studies should be more encouraged by giving some more rates of wages.

By doing so, every body will try to study get better education and by good marks. In this way standard and rate of education will increase. Nobody in Thar will remain in the greed of any kind of aid from government or an agency as previous is happening. They will be habitual of to do work and get more money. By giving such chances small children will get more education and struggle for future perspective. In this way Thar will be better developed and more proper.

### **E. Vision for Old Age People**

Those who are old age, disabled or ill and are not able to do proper work, they should also be given chance to share their experiences by doing less and easy work according to their condition. If they are not able to do so then at least they have to come on the working point to guide youngsters by sharing their experiences on nominal charges, otherwise healthy and careless workers will not work. By this practice also funds will go into the right hands of the poor people.

In this way dual purpose will be achieved, one-development projects will be completed and other the fund will go to real poor people. Actually functioning agencies give funds only for poor to face the drought or famine conditions. Those who are rich or middle class can face the problems with preferable efforts. If they are not to able face problems then it is ok, let them work with poor people, make surety that they are ready to call themselves poor then, include them in the poor category and give them equal chances.

It is common observation that those who are rich do not do labour work and feel ashamed. Thus only middle class and poor class will be much benefited. This is the real method of distributing funds into poor and getting double benefit of it by using this policy.

Development work should be handed over to active NGOs and local organizations should cooperate and check and balance should be there.

### **F. Summary of the Vision**

When every Thari will be able to face drought problems then they will keep livestock more and more. By applying this clear vision they will stop investing the time and money for corps manufacturing due to less chances of rain. When they will not utilize their land for agriculture then they will follow suggestion given in this study by doing less efforts and utilizing land in mentioned ways. They will get benefit of it and natural vegetation will increase and non-crops manufacturing will increase. By this increase in vegetation fodder sources will also increase and milk, butter and ghee will increase, when there will be natural and pure diet for them, they will remain healthier and prosper.

It is saying that " healthy mind lives in healthy body " and healthy mind can think more positive. When thoughts are positive then negatively becomes less. And positive thoughts (Love) will increase. So Tharies will get so many benefits from this vision, there is saying, " Health is wealth".

There is another saying that, " when wealth has gone, nothing has gone, if health is gone some thing has gone, if love has gone every thing has gone". So positive thinking is love, when love comes every thing is got, so by this positive thinking (health / love) Tharies will get benefit with in five year they will come out of poverty and at the same time so many development would be completed. There is other saying that "when poverty enters the door, the love flies out of the window." So they will recover this problem. Besides this they will be more aware of their problems and they will be able to generate more income from their existing assets, which are livestock and natural vegetation (non-crop manufacturing). When these things will increase, they will become more prosperous day by day.

The above clear vision is derived from: the studies of Somalia as local organization and Grameen Bank of Bangladesh as microeconomics loan at lowest level and Denmark. Denmark, which was agricultural country and less developed, is now developed country. Getting clear vision from these studies comparing / relating with situation of Thar and by own analysis above suggestion are made. We are sure that those who are intelligent, expert, researchers, planners, donors, investors and workers and who will read this study will be more satisfied and will accept that by applying these technique present agro-based will get boom and will lead Thar to an industrial economy, like Denmark.

There is need of patience to get progress up to required level by following a Chinese saying " Go to people, live with them, learn form them, love them, and start with what they have." (18)

Work should be started by living with Tharies and should learn the indigenous knowledge and way and means to convince them by loving manner. What ever is the situation and their financial position, start with that, what ever they have. Learn the lesson from experience of Grameen Bank and others studies given in thesis and we

should get encouragement to do work in Thar for the betterment, progress, development and alleviation of poverty. At last Thar will be an industrial economy like Denmark. All this can be done if it is compared with Somalia as a local government. Every Somalian is thinking that every work of progress is responsibility of every individual.

## VI. Conclusion

To further develop agro-based industries in Thar and Barrage areas, it is necessary for the Government of Sindh to take steps for local organization and indigenous knowledge and leadership. The awareness of rangeland and livestock by the local organizations will help in the enhancement of all other agro-based industries. The development of agro-based industries in Thar will boost Sindh's industrial economy. In order to alleviate poverty, it is also necessary that people be trained in the ways and means to develop their physical assets (land and livestock). In this way poverty will fall about 55 percent. For the development of Thar's agro-based industries two formulas are suggested as below:

A. *Alleviation of poverty = Local Organizations + Livestock*

B. *Development of Thar = Local Organizations + Livestock + Roads + Electricity*

For the achievement of purpose followings measures should be taken:

### 1. Proposed Immediate Measures:

- i). Land reforms are must for eliminating rural poverty, being a prime instrument for the development of agro-based industries.
- ii). Awareness should be created to use duly fenced farmlands for the purpose of fodder for livestock.
- iii). Micro-financing system be introduced for safety nets.
- iv). Bringing up live stock (animals within species; race, lineage; sort and kind) by producing fissile material, by introducing short-term loans, on experimental basis.
- v). By taking steps for conservation of rangeland should be taken by planting indigenous and erotic plants and grasses.
- vi). People be trained to understand the benefits of non-crops (un-sowed natural vegetation) and mathematical calculations may also be taught.
- vii). Activities of NGOs should be encouraged.

### 2. Medium and Long Term Measures:

- i). Giving awards for best performance constantly should be encouraged local leadership.
- ii). Kandi (propos ginerasia) and beer (*Acura pседotomentosa*) planting should be encouraged.
- iii). Tube wells and hand pumps should be installed. Existing tube wells be checked, and dams/small water reservoirs should be constructed to improve storage/ conservation of water.
- iv). Recommendations of SAZDA for under ground water aquifers should be implemented.
- v). Wherever potable water is available; possibilities for the supply of water, through pipes to nearby villages, should be explored.
- vi). Income generating activities (roads, water development facilities, electricity, healthcare both for human and husbandry, as well as tree plantation for commercial purpose should be under taken by the authorities
- vii). Market for livestock should be searched and conserved.
- viii). Further research on livestock, its fodder, growth in rangeland and farmlands, and its market should be carried out.
- ix). Agro-livestock industry should be promoted with the good intention to boost their export.

*A Comparative Study of Agro-based Industry of Tharparkar with Canal Barrage Area Sindh (1988-2000), Suggested Techniques Leading to an Industrial Economy, PhD Theses, Department of Economics, University of Sindh, Jamshoro, April, 2002, Chapter-10. By: Gobind M. Herani*

- x). Milk plant, meat plant and wool utilizing factories should be established.
- xi). China clay, granite grazing and coal utilization industries should be established.
- xii). Coal should be explored.
- xiii). Implications of LBOD scheme, Renni Canal scheme and Thar Canal scheme should be confirmed as soon as possible.
- xiv). Work of Thardeep and SAZDA for water tube wells should be considered in connection of cost comparatively.

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