

Training schedule and strategy

I. Creating common understanding of environment

Time	Theme	Strategy + Task
0900-0910	Recitation + Introduction	
0910-1000	Explaining the concepts: <ul style="list-style-type: none"> • Environment • Natural capital • Natural resources and their types • Carrying capacity • Management Guidelines • Ecological foot print • Food chain/web • Biogeochemical cycles 	Ask the participants to define each term (Key words); Write the defined key words on the board; Plenary work for the synthesis; Transparencies can be shown for further clarity
1000-1015	Inventory of the existing environmental components and issues in the rural set-up	Ask the participants to enumerate various environmental components and issues

II. Sensitizing the participants about:

- **The state of environment and the causes behind the state**
- **Environmental degradation and its relationship with Poverty**

Time	Theme	Strategy + Tasks
1015 to 1200	Sensitizing the partners: <ul style="list-style-type: none"> • indicators (state and causative) • relation of degradation and poverty in each component 	Ask groups of participants to choose one component of the environment per group and develop state and causative indicators for degradation; also asked them to work on the relationship of environmental degradation with the poverty; Presentations and plenary work

II. Understanding the three levels of sustainability

Time	Theme	Strategy + Tasks
	The three levels of sustainability	Divide the participants in groups and ask to develop the attributes of a sustainable model for development for rural areas of this province Presentation and Plenary

III. Understanding PEC as an approach for environmental management which addresses the two way relationship

Time	Theme	Strategy + Tasks
	Primary Environmental Care as an answer to synergism	<ul style="list-style-type: none"> • Brainstorming for identifying an approach for supporting the rural poor which can address the two way relationship of poverty and environment • Explaining the PEC as a viable approach

Notes for the trainer

Training session on “Linking poverty and environment” for SRSC Staff

Background:

Sarhad Rural Support Corporation (SRSC), being an integral part of RSPs, is mandated with poverty alleviation in NWFP. You might be aware that PSDN, SPCS Support Project is collaborating with SRSC in greening their program by focusing on integrating poverty alleviation and environmental management. We are therefore working on various components of SRSC which include Human Resource Development (HRD), Social Organization, NRM, Monitoring and evaluation, etc.

Regarding HRD we are developing training packages for the staff and community activist. Training packages for the community activists have already been designed and tested at two levels, the beginners and the seniors, of two hours and one day duration respectively.

For the staff I have designed a one day training session which is focused on appreciating the two way relationship between poverty and environment. The brief objectives of the session are as follows:

- Creating common understanding of the term environment
- Guidelines for managing the environment
- Sensitizing the participants about the state of environment
- Levels of sustainability
- Two way relationship between environment and poverty understood
- PEC as an approach for environmental management which addresses the two way relationship

Creating common understanding of the term environment

This session will be facilitated with the help of the concepts in environment such as mentioned below:

ENVIRONMENT

Terms such as rural environment, urban, political, religious, social, cultural, economic, domestic, global, and work environment etc. are used in everyday life. Generally speaking, environment for us means “every thing surrounding us other than ourselves”. The environment includes living things (e.g. plants, animals, microbes) and non-living things (e.g. air, water, soil).

OR

Environment is a combination of physical , chemical, and biotic factors (such as climate, soil, and living things) that act upon an organism or an ecological community and ultimately determine its form and survival. To explain this better we would have to talk about the Ecosystem, food chain, food web and biogeochemical cycles (see attachment 3.). However the concept of Natural Capital can be used as an opening tool.

Natural Capital

Natural features, such as **minerals, biological yield** or **pollution absorption capacity**, which are directly or indirectly utilized or are potentially utilize-able in social and economic systems are called natural capital. Examples of the three categories of Natural capital are as follows:

- Minerals** such as petroleum, coal, marble, iron, gold, copper, etc.
- Biological yield** such as forests, livestock, wildlife, fisheries, agricultural crops, etc.
- Pollution absorption capacity** is the sink for pollution and includes the air, water bodies, the soil, etc.

Thus natural capital acts as both the *resource* and the *sink*. In this chapter the Natural Resources given below shall be used synonymously with natural capital.

Subdivisions of natural capital

Natural capital is subdivided into **Critical** and **Non-Critical** natural capital.

- Irreplaceable, irreparable, or particularly scarce elements of nature, and those elements that are believed to play a significant role in maintaining some important or desirable ecological state are called **Critical natural capital**. For example in the mountainous regions of NWFP, forests are gradually becoming critical natural capital.
- Renewable and non-renewable elements that are currently abundant or the use of which to have few ecological consequences are included in **Non-critical natural capital**. Solar energy is one of the most prominent example of Non-critical Natural capital.

Natural Resources

Each element of the surroundings (environment) of man is a resource on which s/he draws in order to develop a better life. Thus every part of our environment - e.g. land, water, air, minerals, forests, range land, wildlife, fish or even human population - that man can utilize to promote his welfare may be regarded as a Natural Resource. A brief on the Classification and the conservation of Natural Resources is given in Attachment 1.

Broad guide lines for the management of Natural Resources:

1. The sustainable rate of use of a renewable resource can be no greater than its rate of regeneration, except in the case of liquidation of old stocks (e.g. a forest creating a negative increment through decay and other losses).
2. The sustainable rate of use of a non-renewable resource can be no greater than the rate at which a renewable resource can be substituted for it. This is therefore effected by the constraints on the use of renewable resources given above.
3. For pollution absorption capacity, the sustainable rate of use (i.e. the rate of pollution emission) can be no greater than the rate at which a pollutant can be processed or absorbed by the environment.

In a nut shell these rules assert that the use of the Natural Resources should not exceed the ***carrying capacity*** of our environment. Carrying capacity is related to the rest period between use and regeneration in case of resources, and emission and absorption in case of sink. Examples of carrying capacity are: The number of livestock units that can be carried per unit area for the purpose of production without permanently damaging the ecosystem is an example of carrying capacity in case of resources. Similarly the rule that the quantity of vehicular gases should be less than the safe space required for absorbing them describes the carrying capacity of the sink. If carrying capacity (both in the case of use and emission vis a vis regeneration and absorption) is exceeded, the situation becomes ***environmentally degraded***.

Sensitizing the participants about the state of environment

Indicators: State and causative, along with the guidelines for proper management, of each component of environment

Area: Soil

Background

Soil is the upper layer of land which has a combination of minerals essential for plant growth. However maintaining this capacity of soil depends on its proper use. Major soil related problems are water logging, salinity, erosion, leaching of minerals, etc. These adversely affect soil productivity. However, by

identifying the state and cause of the problem and adopting proper measures, these setbacks can be avoided /reversed.

State indicators	Causative indicators
<ul style="list-style-type: none"> • water logging • white or reddish layer which indicates salinity and alkalinity respectively • washed out top layer and rills & gullies which indicate erosion • reduced productivity 	<ul style="list-style-type: none"> • excessive irrigation leads to salinity and water logging • lack of proper drainage leads to water logging • development of hard pan leads to: <ul style="list-style-type: none"> -water logging in plains -erosion in hilly areas due to lack of in-filtration • exposed soil leads to soil erosion by wind and water • farming on steep slopes leads to erosion/land slides

Area: Water

Background

<p>seepage through unlined channels</p> <ul style="list-style-type: none"> • seepage through unlined channels • lack of drainage • improper leveling • scarcity of water at the tail 	
<p>Water for drinking State indicators in terms of quality and quantity</p> <ul style="list-style-type: none"> • water with odor • the color of water • the taste of water • scarcity of water 	<ul style="list-style-type: none"> • contamination of water due to improper draining of sewage • pollutants (chemical fertilizers, pesticides) • water losses through improper supply • lack of water supply

Area: Agriculture

Background:

Agriculture is the back bone of our rural economy. The production thrust has increased enormously due to the increasing demand for food. This has led to intensive and extensive farming. Intensive farming is becoming cost in-effective due to an increasing demand for inputs and it is degrading the environment at the same time. While extensive farming is increasingly devouring marginal and sub-marginal lands originally occupied by forests and grazing lands and is thus affecting the support system of the arable land itself. Therefore both the practices of intensive and extensive agriculture are detrimental to sustainable agriculture. Some of the leading problems are:

Land-use issues

- Converting productive arable lands into commercial or residential areas
- Improper hereditary land division

Pesticides

- Many insects have developed genetic resistance to pesticides.
- Pests cause greater losses now than they did at the time pesticides were not used.
- Most agricultural chemicals in use today have never been tested for their health effects; they might be causing cancer or birth defects. Pesticides containing carcinogen are suspected to cause cancer.
- The excessive use of pesticides is causing soil and water pollution.
- Broad spectrum insecticide kill all insects irrespective of whether these insects are beneficial or harmful.

Fertilizer

- Decreased organic matter in soil may reduce the land's capacity to hold water.
- Pollution of surface and ground water leads to organic pollution in water bodies which causes a decline in fish populations.
- Possibilities of extreme effects such as nitrate poisoning of ground water or leafy vegetables grown with excessive nitrate

Genetic diversity

Wild life has great genetic diversity which contributes to the species' long term survival (provides the variation that enables a population to adapt to changing conditions). Genetic diversity is at stake because of:

- Yield being the farmers practice selective breeding because their priority is the yield only. This results in uniformity of the species.
- Disease organisms (i.e. bacteria, fungi viruses) evolve quite rapidly
- All domesticated species are susceptible to new strains of disease

State indicators	Causative indicators
<ul style="list-style-type: none"> • reduction in productivity • increase in inputs • degradation in quality which may include shape, color, taste, size, etc. • more diseases 	<ul style="list-style-type: none"> • improper use of chemical fertilizers, greater use of major nutrients (for instance nitrogen) and neglecting micro nutrients (for instance potassium) • lack of organic manure which adds micro nutrients • leaching of nutrients due to carelessness about the recommended dosage of fertilizer • development of hard pan due to surface tillage which leads to water logging and diseases like blight and root rot • lack of crop rotation • reliance on imported breeds • losses due to: <ul style="list-style-type: none"> -onset of insects -lack of proper storage arrangements -conventional ways of harvesting • lack of technological know how about: <ul style="list-style-type: none"> -proper spacing; seed preparation; mulching; thinning/pruning; weed control -use of pyrathrites (group of pesticides which is effective and lasts for a shorter time) -biological control and Integrated Pest Management -time of spray, type and amount of pesticides • lack of proper seed varieties (good in production and resistant to diseases) • converting agricultural land into commercial and residential areas

Area: Live stock

Background

Livestock plays a crucial role in the household economy of rural areas. Its improper management is detrimental both to the economy and environment and thus to the health of the rural population. It is very important to create awareness about the declining state of livestock and identify the causes of decline. Once this is done the situation can be improved on a sustainable basis by adopting suitable guidelines which are simple and based on the least external inputs.

State indicators	Causative indicators
<ul style="list-style-type: none"> • less production per unit animal • poor availability of animal products 	<ul style="list-style-type: none"> • under-fed animals; inappropriate quality and quantity of food

<p>(meat, eggs, milk, milk products in the village)</p> <ul style="list-style-type: none"> • export/import of animal products (meat, eggs, milk, milk products) from/into the village • availability of milk for the children in the households • prices of meat/milk and milk products • weak and de-shaped animals • more diseases • general health of the people • more use of pack milk in the area 	<ul style="list-style-type: none"> • livestock given low priority • mismanagement of range lands • lack of know-how in livestock husbandry • low genetic potential of livestock • feed/fodder losses due to improper storage • non-availability of fodder in periods of scarcity • high cost of inputs (concentrate feed, medicines) • increased number of animals to cover risks (more thrust on the number of animals rather than the quality) • low fodder production in the fields due to increased interest in cash crops and orchards • lack of treatment facility • lack of hygiene and preventive coverage
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Area: Forestry

Background

The present position of forests can be investigated with the help of three indicators:

- I. deforestation
- II. degradation in quality
- III. the loss of diversity

Indicators have to be identified for each of the areas mentioned above. Guidelines (simple and least dependent on external inputs) for management shall be based on and derived from these indicators.

State indicators	Causative indicators
<ul style="list-style-type: none"> • Deforestation (reduction in the no. of trees per unit area) <p>-increased distances for fire-wood collection</p> <p>-scarcity of wood</p> <p>-inflated prices of wood</p> <p>-added erosion</p> <p>-flooding situation</p> <p>-ground water depletion (more tapping than recharge)</p> <p>-use of dunk cakes and farm residues as fuel</p> <p>-drying up of springs</p> <ul style="list-style-type: none"> • -decline in the number of tanours (bread bakery) in houses <p>Degradation in quality</p> <p>-poor appearance of the trees</p> <ul style="list-style-type: none"> • Loss of diversity <p>-fewer species per unit area</p> <p>-adverse effects on specific species</p> <p>-availability of non wooded forest products for example mushrooms, medicinal plants, honey, etc.</p>	<ul style="list-style-type: none"> • Deforestation <p>-to satisfy the needs of added population (timber for construction & firewood for domestic use)</p> <p>-tenure problems (for instance the communal forests)</p> <p>-in-equitable distribution of benefits</p> <p>-easy access to resources</p> <p>-myth of inexhaustibility</p> <p>-conversion of forest land into agricultural fields</p> <ul style="list-style-type: none"> • -excessive grazing leading to: compact soil which retards growth and spoils regeneration <ul style="list-style-type: none"> • Degradation in quality <p>-excessive lopping and pruning</p> <p>-lack of know how about harvesting techniques</p> <p>-poor choice of species (for instance planting eucalyptus in rocky areas)</p> <ul style="list-style-type: none"> • The loss of diversity <p>-selective felling</p> <p>-profuse grazing</p> <p>-habitat destruction</p> <p>-natural forest destruction</p> <p>-soil once exposed can't support the same diversity</p> <p>-set-back to succession</p> <p>-improper management of non-wooded forest products</p> <p>-importance only on the base of economic value</p>

Area: Wildlife

Background

Wildlife degradation occurs due to over-use of the resource and habitat destruction. The situation is closely connected to the degradation of other natural resources and the effects are felt both ways.

State indicators	Causative indicators
<ul style="list-style-type: none"> • decline of key species • increase in non economic species like the Crow • increase in insects (prey species) • increase in the Rat population because of a decrease in the Owl population • prey-predator relationship (balance) is disturbed • outburst of diseases like plague, etc. • predators (in the wild) are disturbed due to a dependency on livestock for food • the range ecology is changed because there is an abundance of prey in grazing lands with no predators around. The absence of predators disturbs the prey / predator balance 	<ul style="list-style-type: none"> • hunting for food and sport • predators being killed • economics • animal betting • medicinal value • pets • habitat degradation or alteration

Area: Grazing lands

Background

Both qualitative and quantitative degradation in grazing lands is becoming a growing concern. It not only affects livestock but also affects other natural resources e.g. water harvest, forests, agricultural crops, wildlife, etc.

State indicators	Causative indicators
<ul style="list-style-type: none"> • traveling increasing distances for grazing • stall feeding for non milking animals • dispersed grazing (this indicates selective grazing) • increased soil erosion • decline in the health of the animals 	<ul style="list-style-type: none"> • increased number of animals • over grazing and under grazing/lack of grass cutting • selective grazing • soil erosion

Area: Fisheries

Background

Fish are not only a rich source of protein but in many cases they are a source of livelihood for the rural poor and also provide recreational opportunities to many others. However fish populations are degraded and are on the decline due to over-exploitation and contaminated water bodies. The situation can only be remedied once the stakeholders are encouraged /empowered to make a difference.

State indicators	Causative indicators
<ul style="list-style-type: none"> • inflated prices because demand exceeds supply • non availability of fish through angling • traveling increased distances for fishing • decreasing numbers of fisherman 	<ul style="list-style-type: none"> • lack of know how about carrying capacity • lack of awareness about the state and importance of fisheries • illegal fishing (use of dynamite, electric shocks and poison) • fishing in the breeding season • use of smaller (prohibited) net sizes

Absorption capacity

Area: Solid waste

Background

Solid wastes are mainly of the following three types:

- I. Municipal solid waste
- II. Industrial solid waste
- III. Hazardous solid waste

In our discussion we shall mainly focus on municipal solid waste since it is the dominant degrading factor in rural areas.

State indicators	Causative indicators
<ul style="list-style-type: none"> • solid waste dumps (haphazard) • street dispersal • unpleasant smell • increase of insects (houseflies and mosquitoes) • increase in the no. of Rats and other rodents • increase in the numbers of scavengers e.g. Crows, children, etc. • standard of living 	<ul style="list-style-type: none"> • increase in population (0.4 to 0.5 kg per capita production per day. In rural areas, the waste production is more due to more animals) • lack of awareness and civic sense • plastic bags and tins • lack of facilities/infrastructure, e.g. final disposal sites • mismanagement of agricultural products

Area: Sewage

Background: Sewage is the liquid waste which is disposed off through sewerage. Sewerage facilities are not available in rural areas and sewage is drained into either a poor disposal site or left in the open. This affects other areas e.g. like drinking water sources such as dug wells.

State indicators	Causative indicators
<ul style="list-style-type: none"> • still waste water • water with other solid waste • water born diseases (stomach diseases like cholera, typhoid, diarrhoea) • hardness • smell/odour and taste • insects like flies and mosquitoes • depletion of water i.e.drying up of wells and springs 	<ul style="list-style-type: none"> • improper disposal of solid waste • hardness due to industrial waste water drained into the water systems • lack of awareness about the effects of waste disposal • individual versus common interest i.e. people clean their houses at the cost of local streets • lack of technical know how regarding basic hygiene

Site specific **PEC (primary environmental care)** can be devised as follows:

Solid waste management	Waste water management
<ul style="list-style-type: none"> • rotation of solid waste composting (crude) • covering the existing S.W heaps with plastic sheets and leaving an inlet for oxygen 	<ul style="list-style-type: none"> • hole for the common drain placed outside the village • check the drain with a phased filter before it enters the stream/canal

Area: Air emissions due to Brick kilns and mines:

Background Air pollution in the rural areas is not as alarming as urban centers. However in some areas brick kilns and coal mines, e.g. in Cherat, are the major sources of air pollution. It is a growing concern in such areas and is adversely affecting the health of the people and their agricultural crops.

State indicators	Guidelines for proper management
<ul style="list-style-type: none"> • Health indicators -sinus problem and throat infections -allergy 	<ul style="list-style-type: none"> • negotiations with the kiln owners for

<ul style="list-style-type: none"> -chest congestion -asthma -eye irritation • Physical indicators <ul style="list-style-type: none"> -layer of dust on everything -health of the workers (the immediate victims who have shorter average life) -water due to: fallout (direct contact) and percolation (indirect contact) -place a bowl of water in open air and check it after 12 hours; surface, suspended and settled particles will be found in the water -black color of spit -effect on live stock: <ul style="list-style-type: none"> relatively unhealthy the quality and quantity of milk is not OK 	<ul style="list-style-type: none"> using proper fuel and installing proper chimneys • raising block plantations near the sites of kilns and mines
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Area: Community development Projects

Background: The environmental damage caused by small-scale projects (e.g. micro-enterprises, water, sanitation, irrigation, agriculture, animal husbandry and construction projects) can add to and compound a community's problems. A latrine seeping into a source of drinking water can spread diseases throughout a village. A poorly designed irrigation project can pose serious environmental and health threats.

State indicators	Guidelines for proper management
<ul style="list-style-type: none"> • resource depletion e.g. soil and vegetation losses due to poor road alignment • soil erosion/compacting due to selection of wrong site of water supply schemes • imbalanced use of resource (over use at one place and under use at the other) due to concentration of animals caused by water ponds • channel erosion due to poorly designed water channels • saving one bank of the river at the cost of the other bank (deposition at one bank and cutting at the other due to poorly designed gabians /spurs) 	<ul style="list-style-type: none"> • integration of environmental assessment in the project cycle of any developmental project • imparting know how about the basics of an informal environmental assessment

Levels of sustainability

Level I: At the level of individual component

If we are managing any component of environment in isolation, without considering its relationship with other components, its carrying capacity will be determined without its cause effect relationship with the rest of the world. This approach will be detrimental not only for the particular resource but also for the other components with which this resource is in natural and inevitable interaction. For example a forest is managed without considering its effects on the contiguous agricultural fields will certainly bring undesirable consequences for both the components.

Level II: At the level of ecological whole:

This will be the level where the management of certain component/s is based on considering the interaction among various components of the environment. The carrying capacity in this case is determined on the basis of cause effect relationship among the ecological component. During the forest management, in this case, all the possible linkages between the contiguous components are taken into account. Thus the approach is ecologically sound but may this will consequences which may not be socially or economically undesirable.

Level III: The holistic approach:

Once the management at level is tuned to consider its linkages with the social and economic dimensions of the system will be termed as holistic approach. This system will be based on the three principles:

- a) ecologically sound

- b) economically feasible
- c) socially just and equitable

This approach can ensure sustainability by appreciating the links between the social, economic and ecological dimensions. The approach is to be appreciated by all the development actors whether they pursue the goals of poverty alleviation or environmental management or economic emancipation.

Two way relationship between environment and poverty understood

- How degradation in various components of environment reinforces poverty

Local environmental damage hurts poor people most

Estimated costs of environmental degradation in selected Asian countries

Country	Environmental damage	Annual cost (US \$ billion)	% of GDP (US \$ billion)
China	• Productivity losses caused by soil erosion, deforestation and land degradation; water shortage and destruction of wetlands	13.9 to 26.6	3.8 to 7.3
	• Health and productivity losses caused by environmental pollution in cities	6.3 to 9.3	1.7.to 2.5
Indonesia	Health effects of particulate and lead levels above WHO standards in Jakarta	2.2	2.0
Pakistan	Health impacts of air and water pollution and productivity losses from deforestation and soil erosion	1.7	3.3
Philippine s	Health and productivity losses from air and water pollution in the vicinity of Manila	0.3 to 0.4	0.8 to 1.0
Thailand	Health effects of particulate and lead levels above WHO Standards	1.6	2.0

The two way relationship between environment and poverty

How poverty affects environment:

If food become the ultimate concern then environment, for the poor, carries less weight

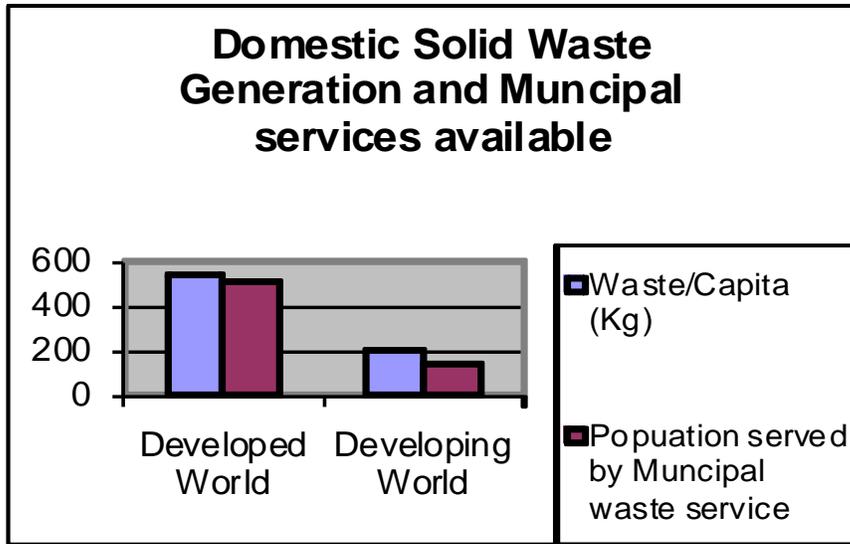
Poor care less for tomoro

Lack of inputs; only they depends on the outputs

The more a community is marginalized the more they depend on the natural resources without investing on its replenishment u

The rural poor and Solid Waste:

Poorly managed domestic solid waste seriously threatens health. In areas lacking sanitation, waste heaps become mixed with excreta, contributing to the spread o infectious diseases. Again, the poor suffer most. They live near waste disposal sites, and their children are the waste-pickers. In the developed world the waste generation per capita is more but so are the municipal services while in developing countries, offcourse, per capita waste generation is less but the municipal services are insufficient (see the Graph below). The waste generation and the municipal services are evenly distributed, in rural and urban areas, in the developed world. However, in developing world the municipal services are mostly confined confined to the cities while on the other hand it is speculated that per capita waste generation in the rural areas is more because of the concentration of domestic animals. So the combined effects of more solid waste per capita with poor arrangements for disposal adversely affects the rural poor.



Water pollution and contamination:

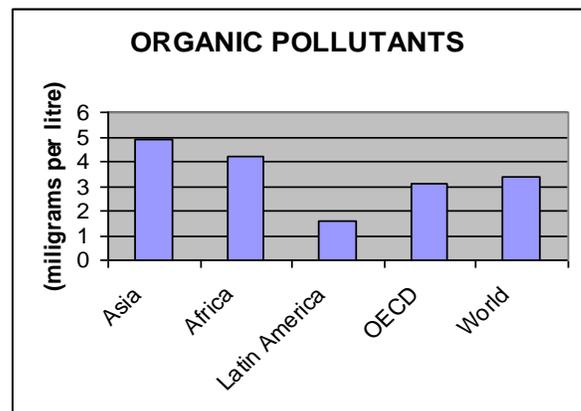
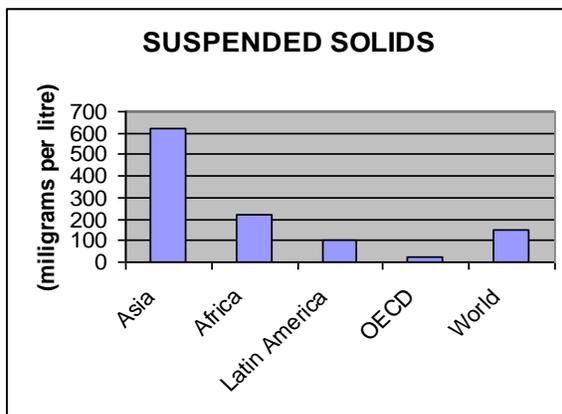
- The poor have less access to safe water (1.3 billion people in the world don't have access to safe water)
- The poor have less access to sanitation (2.5 billion people in the world don't have access to sanitation)

More than 90% of the waste water is discharged directly into streams, open drains, rivers lakes and coastal water without treatment. As a result of this pollution water borne diseases – diarrhoea, dysentery, intestinal worms and hepatitis – are ripe.

Diarrhoea and dysentery account for an estimated 20% of the total burden of disease in developing countries and causes the death of 5 million people (3 million children).

Fisheries, one of the main sources of livelihood for poor people, are being damaged by sewage and in the recent times fish yield has been declined by 40%.

The overuse of fertilizer has started water pollution in organic form (for example Algae, etc.) which competes fish for dissolved oxygen.



Air Pollution

“Air pollution from industrial emissions, car exhaust and the burning of fuels at home kills more than 2.7 million people every year – mainly from respiratory damage, heart and lung disease and cancer. Although air pollution is normally seen as predominantly a problem of industrial countries, more than 90% of the deaths occur in the developing world. Although it is

normally seen as affecting the air out-doors, more than 80% of the casualties are from indoor pollution. And although it is normally seen as affecting towns and cities, more than two-thirds of the mortalities are in the rural areas” Human development report, 1998, UNDP.

- Poor people at the bottom of the energy ladder, must burn dung, wood and crop residues indoors for their cooking and heating. As these fuels are more polluting than modern alternatives burning such fuels fills houses with smoke swirling with hundreds of toxic substances, killing 2.2 million people a year, mostly in rural areas, where most of the poor live. Both indoor air pollution and poor nutrition increase susceptibility to respiratory infections in the developing world.
- Nearly two-thirds of the deaths from indoor air pollution are in Asia.

Pesticides as a pollutant

Pesticides are most widely used in developed world but due to proper precautionary measures and quality products (relatively less toxic for human health) the effects are relatively less alarming. But again it is the world's poor who suffer the most acute effects from pesticides. They pose a major occupational health hazard for poor farmers, who are easily exposed to dangerous levels. These workers use pesticides without training or protective clothing and are often unable to read even simple instructions. The poor farmers along with their families live mostly in the farm vicinity that is why not only them but their families are also exposed to these hazards. As many as 25 million agricultural workers in the developing world are affected every year and hundreds of thousands of them die of it.

Adulteration and the rural Poor:

Adulteration is common, particularly with products obtained from small shops (unauthorized dealer) in the rural areas of NWFP. The legal brands are adulterated mostly with the members of the **dirty dozen group (2,4,5-T, the drins (endrin, aldrin, dieldrin) paraquat, chlordane, lindane, DDT, camphechlor, chlordimeform, ethylene dibromide, CBCP, ethyl parathion pentacholophenol)**. Most of the members of this dozen group are carsenogenic (can cause cancer) while all of them are persistent as well as harmful to humans. All of them are indiscriminate in nature, thus directly threatens bio-diversity which in-turn affects the farming system.

The rural poor has less access to the big authorized dealers in the cities because they can't afford mobility on one hand while on the other they seldom go for buying pesticides in bulk. Thus their access is confined to the small dealer notorious for adulteration. The use of pesticides, mainly the adulterated, affects the rural poor in three ways:

- Adverse effects on the health
- Financial losses without bringing any good
- The loss of bio-diversity which again threatens the crops in the absence of natural predators

Soil degradation

Nearly a third of the world's people – almost all of them poor – depend directly on what they can grow, gather or catch. And while everyone on earth ultimately depends on its natural systems, the poor are particularly vulnerable to degradation of those systems.

Soil degradation affects human life in three main ways:

- It reduces the availability of agricultural land per capita and agricultural productivity. Pressure from arable land stemming in part from soil degradation has reduced per capita farmland to a tenth of acre.
- It reduces the fodder available for cattle.
- It turns people into environmental refugees searching for more fertile land.

Deforestation

Deforestation has significant human costs. Forests have been a major source of food, fodder, fuel, fiber, timber, dyes, thatching material, medicines, etc. Cutting them can rob poor people of their livelihood as well as their medicines.

Forests do wonderful things. They bind soil to the ground, regulate water supplies and help govern the climate. Cutting them seriously impairs these attributes. A substantial proportion of poor people depend on water absorbed by the forest of mountain ranges. But when the trees have been felled, rain water sheets off the land, causing first floods, then drought. In Pakistan hundreds of thousands of hectares have become more vulnerable to flooding as a result of deforestation.

Framework for integrating poverty alleviation and environmental management:

According to Durning (1989), poverty has become an increasingly environmental phenomenon. The poor not only suffer disproportionately from environmental damage caused by better off, they have become a major cause of ecological decline themselves. Pushed to marginal lands by population growth and inequitable development patterns, they raze plots in the rain forest (mountain forest, in our case) plow steep slopes, and overgraze fragile range land. Economic deprivation and environmental degradation have thus come to reinforce one another to form a maelstrom – downward spiral that threatens to pull ever more into its grasp.

The main entry point into the debate is the notion of ‘environmental entitlements’ or the combined outcome of both (a) the environmental resource bundles that people have command over as a result of their ownership, their own production, or their membership of a particular social or economic group; and (b) their ability to make effective use of those resource bundles’ (Leach and Mearns 1991a: iv).

Whilst environmental entitlements moderate the process of interaction between people and the environment, a series of structuring processes at the macro level will operate to determine the nature of these interactions, thus creating a series of levels for analysis. At the micro level a variety of factors such as technology, available capital natural resource tenure arrangements and gender and other social relations will influence environmental entitlements, whilst at the macro level environmental processes and a series of other exogenous social, economic and political processes will structure the processes operative at the micro level. The issue of population is factored into the poverty/environment axis at the macro level as demographic change (see figure).

Very attractive, as well as challenging, part of the debate is the transformation of the negative links between poverty, population and the environment into positive links. This reversal is possible only by adopting a series of entry points which when activated together have an impact greater than the sum of their parts. This brings the principle of synergism into the debate.

Synergism

The term is derived from the biological sciences and may be defined as the “the increased effect of two substances obtained by using them together. The definition supports the classical proverb, “the whole is greater than the sum of the parts”.

In this regard the World bank says, “substantial synergies exist between alleviating poverty and protecting the environment” and that “ many policies that are good for efficiency are also good for the environment”.

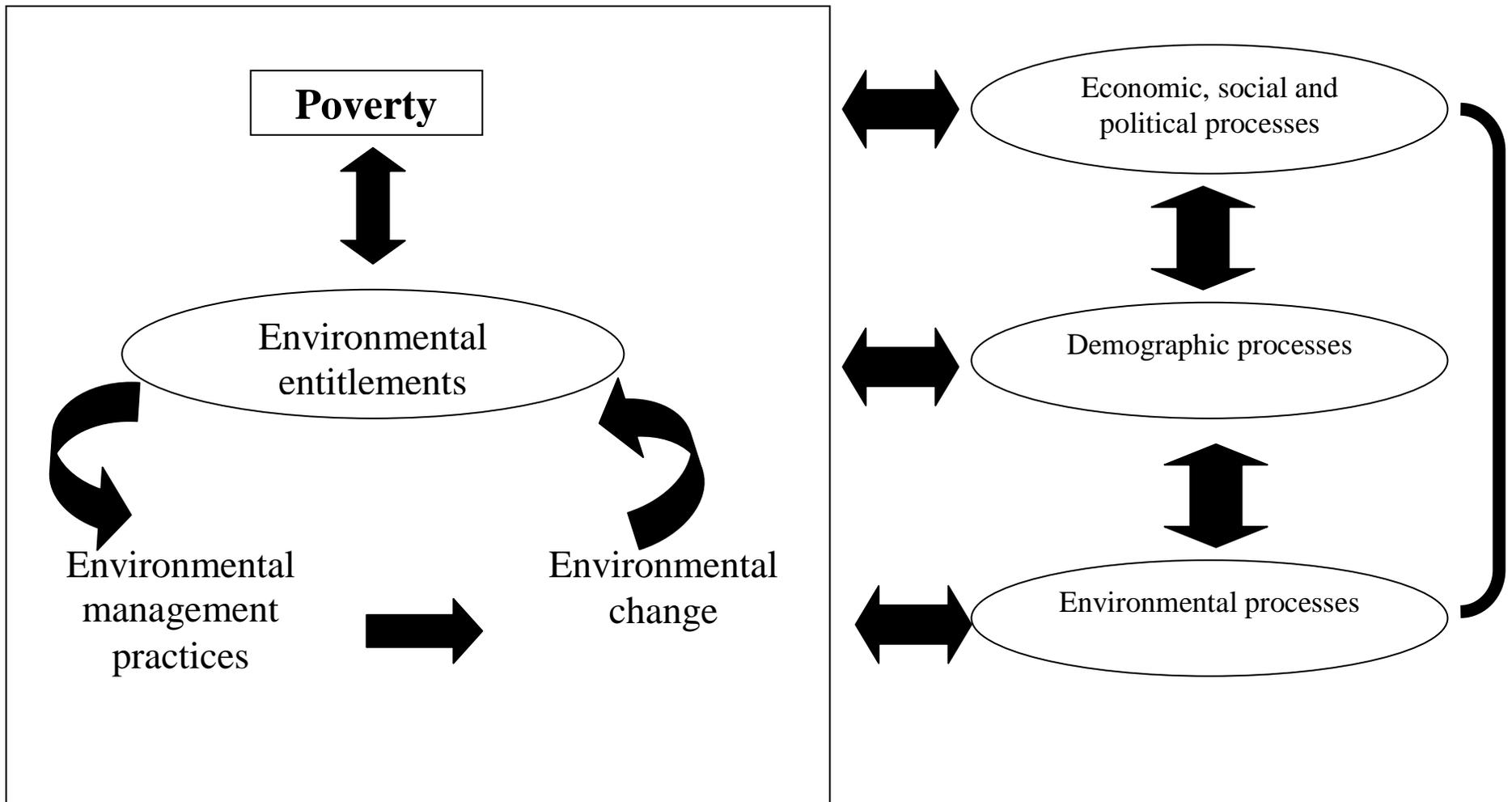
The ODA supports this argument as follows:

Population growth, environmental degradation and poverty are not separate problems, with separate causes. Equally, it is clear that these problems share common solutions. The implications of this is interventions should be directed at the union of problem rather than at the ‘sectoral’ problems, and should aim to take advantage of synergistic effects and complementarities. Thus the identification of interventions which simultaneously alleviate population-environment-poverty problems should be favored.

Environmental entitlements: an analytical framework for creating the link

People in

Structuring



Operationalizing synergism:

Primary Environmental Care (PEC) may be conceptualized as an approach for operationalizing the synergism. PEC as defined by Pretty and Guijt (1992: 22) is “a process by which local groups or communities organize themselves with varying degrees of outside support so as to apply their skills and knowledge to the care of natural resources and environment while satisfying livelihood needs”.

In order to be effective PEC tackle three objectives in unison as:

- a) caring for the environment
- b) meeting basic needs and,
- c) empowering communities

PEC therefore goes beyond a narrow sectoral approach to development and, instead, attempts to find integrated solutions to problems in specific local contexts. This approach is considered both more effective and efficient in resource use than a single-sectoral approach. One can deduce that combined action on three fronts gives rise to synergistic outcomes. To use a simple example ‘healthier and better educated people are more able to participate in good environmental management’.

CONCLUSION

The two way relationship between the environmental degradation and the poverty:

- Degraded environment reinforces the poverty
- Poverty reinforces the environmental degradation



ROLE OF THE SRSC STAFF:

The staff of SRSC is therefore forced with need on one hand and bestowed with opportunity on the other due to the following two dimensions:

- a. due to inevitable need of integration
- b. due to ethics (as they can work more effectively for both the environment and poverty because of their access to the grass root level)

Keeping in view this opportunity and the need they ought to pursue a holistic approach towards poverty alleviation.

