Land Degradation is The Instinctive Source of Poverty in Rural Areas of Pakistan

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Abstract. This review paper focused on the correlation between land degradation and poverty. Pakistan is an agricultural country and agriculture is the backbone of Pakistan’s economy. For the rapid growth of population food security should be under guarantee as well as the food production. In that farmers overused agrarian inputs, such as fertilizer, pesticide and water, environment and farmers were affected from the perspective of contamination and disease increase respectively. Due to over-exploitation of fertilizer and irrigation, ground water was contaminated, soil fertility weakening, salinity increasing and waterlogged. Consequently, soil was hard to be cultivated. In Pakistan 70% of people live in rural areas who are directly or indirectly involved in agriculture. As a result of land degradation farmers can not gain much benefit from agricultural activities and they are also unable to feed their children. Many of them became criminals, therefore, poverty deepened day after day. In order to alleviate poverty, Pakistan government should subsidize farmers on environmentally friendly inputs and; government should also open agricultural training schools to engage farmers in modern methods of cultivation, and provide modern technologies with subsidy rate. When the farmers are aware of how to increase the fertility of soil by employing modern methods, they can gain higher production, and obvious higher production is critical for living a better life and reducing poverty.

1. Introduction
Pakistan is a predominant dry-land country with the majority of land arid or semi-arid. Rapid growth of population depends a lot upon dry-land areas as well as the support from the agriculture sector [1]. In Asia there are many other developing countries affected by land degradation, but Pakistan is seriously affected by land degradation and desertification due to untenable management of land use practices, rapidly increasing demand of renewable and non-renewable natural resources[2]. What’s more, enormous threats of environment were created in Pakistan, such as dry land degradation, reducing soil fertility, increasing floods, loss of biodiversity, increasing desertification, decreasing land productivity, soil erosion, water erosion, increasing salinization, loss of vegetation plants, increasing overgrazing, etc. In most of the rural areas what’s commonly found is drought as a result of
water scarcity, desertification owing to mismanagement of land planning and reducing production, which are main causes of the deepening poverty in Pakistan.

Land in Pakistan covers 79.61 million hectares, from which 59.47 million hectares were recorded through the survey of Pakistani government. Nearly 21.85 million hectares of land was utilized for agricultural activities, of which 4.04 million hectares is forestland and 9 million hectares is cultivable wetland[3]. Approximately 90 percent of land is located in the river deltas of Sindh and Punjab provinces. Furthermore, 85 percent of the land was irrigated, and the remaining 5 percent was not irrigated which was denoted by Barani (Rainfed) area of agriculture in northern KPK and southern Punjab of Pakistan[4][5][6]. There are totally 140 million hectares of agricultural land, some 43 percent of which faced degradation problems. Moreover, among the degraded land, 23% was seriously affected, 45% moderately influenced and the remaining 32% was mildly degraded.

Pakistan’s economy is primarily dependent on agriculture, which accounts for 21.9% of GDP [7]. To achieve a higher level of production, farmers carried out over-exploited application of inputs. However, as a result of overusing inputs salinity increased, leading to the decline of soil fertility and increase of water logging[8]. Some facts show in Sindh and Punjab land degradation issues are very serious due to poor planning and management. Some rural households rented or sold their land to bricks factories and engaged in non-agricultural activities, such as grazing, pasture and destroy vegetation which can readily lead to land degradation. Overgrazing also has correlations with land degradation, especially in Indus Delta River where almost all farmers ranch livestock which are reared in intensively cultivated irrigated plains by stall-fed crop residues and forages [9].

The relationship between land degradation and poverty is instinctive [10], whether poverty was induced by the mismanagement of farmers or the consistent relationship of population with land which is used for productive purposes [11]. Here is an extreme dearth of studies seeking to rigorously test these relationships, however, the lack of appropriate data leads to the paucity. Reliance has to be placed on studies from which the relationships can be inferred. Most of the rural areas are exposed to the following problem: behaviors of small-scale farmers and land degradation, which denotes that small-scale farmers have been the primary agents responsible for land degradation activities [12]. The market and institutional failure are the prime factors for farmers to adopt non-sustainable practices. The price regulation on agricultural products in Pakistan did not provide incentives for the poor small-scale farmers to conserve their land [13]. In some cases this has led to the decrease of resources for maximum output. Whereas, on the other hand, evidence was found that small-scale farmers were willing to give up short-term income gains even under price and famine pressure to pursue long-term sustainable management strategies [14]. The existence or non-existence of secure land tenure systems might explain the contradiction about small-scale farmers’ behaviors. Secure land tenure was the primary reason why poor farmers cultivated their land excessively to exhaustion [15][16][17]. The main objective of this study is to make plans to strengthen the awareness of land resource conservation, to sensitize the policy makers and practice partnership with due authorization of successful planning.

2. Effect of exploitations of agricultural practices on rural households

Changes in agricultural practices have primary effects on land degradation, which will consequently influence the income level of rural households [18]. Such changes have taken place worldwide through adopting green revolution technologies. Agricultural change can also occur where green revolution technologies have not been adopted yet. In the case of the latter, the primary effects on the environment are generally stated to be in the form of desertification, deforestation, watershed degradation, soil erosion and soil fertility decline. The secondary effects can be droughts and floods. These environmental effects can be transformed into specific effects at the household level. And they may take the form of impoverishment or productivity decline, migration-related health stress, vector borne and airborne diseases, communicable disease, chronic food insecurity, seasonal malnutrition and famines. Under the circumstance of the green revolution technology, potential environmental degradation can result from every element of the technology package which can be estimated by direct and indirect use of technology elements. For example, over-irrigation can lead to aggravated
underground water quality and increasing salinization which are harmful for humans health and agricultural productivity. Inappropriate overuse of pesticide has venomous effects on households. Over-application of fertilizers can reduce the soil fertility and nitrate leach down and mix with underground water. As for households, these environmental activities may trigger diseases like diarrhea, cholera, typhoid, malaria, schistosomiasis, onchocerciasis, poisoning and diseases of the circulatory system in infants. The secondary effects of the utilization of such technology can be crowding, sanitation deficiency, diet change and vector control (through inappropriate pesticide use), which leads to communicable diseases, nutritional diseases, poisoning, etc. The effects above denote a reduction in welfare, which is measured under the conventional consumption-based method. Still, it is important to include the non-income measures of poverty like anthropological measurements in assessing the poverty status. Other paragraphs are indented.

3. Land degradation and poverty

Over the last few decades awareness and anxiety about land degradation have increased on the global scale, which was shared by people from different nations, cultures, religions and social classes. Poverty was defined as a condition of being poor [19]. Land degradation was influenced by human activities such as deforestation, overgrazing, destroying herbs and vegetation and changing land cover [20].

Considering the relationship between poverty and land degradation has great significance. Regional overgrazing can seriously destruct the grazing land. Forestry, soil, air pollution and water pollution have significant relationship with national overgrazing [21]. The carrying capacity of the natural environmental resources has been decreasing because as the poor became too impoverished they consumed the resources very quickly [22]. Poor people tend to overuse renewable and non-renewable resources, in that they are in bad living conditions. They need to consume natural resources for the survival, what’s more, to meet their basic requirements, such as demand for firewood, agricultural production (Maize), water and herbal plants for medicine.

3.1. Morbidity, mortality and rural households

Land degradation glitches obviously led to the ratio increase of morbidity and mortality through contamination, dearth of drinking water and decreasing productivity of farm crops due to over-exploitation of fertilizer, pesticides and misuse of natural resources. Therefore, here we discuss how morbidity and mortality affected livelihood strategies and strengthened dependency on indigenous environmental resources. Generally, the minor nonetheless growing body of literature provides evidence for significant relationships between household morbidity, mortality and natural environment mediated through livelihood coping strategies. The basic assumption of this developing form is that natural resources have significant mitigating effects when households are involved in morbidity and mortality through providing additional sources of income and substantial goods that might otherwise be purchased. Natural resource is in urgent demand during the period of drought, famine and natural disasters [23]. Morbidity and mortality will exertheavier burden on family income under the condition that most of the rural households in Pakistan have already lived in margin [24].

Overall, mortality will be the principal cause of the rising household vulnerability if the adult household members decease [25][26]. In recent years, AIDS was a serious challenge for Pakistan which heavily impacted household livelihoods. Haddad and Gillespie bluntly addressed AIDS striped folks, households and community resources [27]. Morality of adults relating to AIDS can influence the household capital in all forms. Humanoid wealth is missing as a result of the sank efficiency [28], the diversion of healthy laborers and the possible injury of remittances from employed refugee family members [29]. Into the bargain, inter-generational information transfer also suffers [30].

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There is a lot of health-related literature on impacts of land cover changes subsequently after frontier relocation, and many current studies concentrate on rising malaria occurrence [38][39][40]. The case above can deliver influences to micro-level research on mutual relationships between frontier relocation and rising malaria occurrence. Land changes due to household migration are responsible for environmental transformation which led to household morbidity and mortality that affect natural resources use (Based on literature review).

4. Influence of land degradation on rural households

Rural households have access to degraded land that is complex for health caring and income earning. However, land degradation will influence rural households directly and indirectly. For example, it will bring about lower yield because of the fertility deficiency, which is a kind of direct impact. Moreover it can indirectly affect the physical condition of laborers due to the poisonous food harvested on the degraded land. In the situation where the labor force is weak due to malnutrition, laborers tend to engage in low-profit activities like fuel wood collection [41].

Agriculture is a sector which greatly depends upon environmental condition for sustainable productivity. Natural resources degradation and poverty indexes were defined in the study that those who browbeat natural resources for the growth of country, such as farmers, were facing whims of nature like disease, drought, spates, inferior agricultural productivity efficiency and poor socioeconomic condition, which are all signs showing the status of poverty [42]. They still are operating less input owing less output domains with low productive efficiency rises poverty index. Furthermore they will live in poverty trap till actual measures of reintegration, renewing and up-keeping of natural resources are taken. An additional cause may be that the sufferers have not realized the severity yet. Although the development and research institutes including public and private are working for the natural resources renewal and protection, situations are still worrying. Farmer is the real guardian of land resources which is seriously affected by poverty and productivity consequences, nevertheless is slightly referred to during land preparation and use of applications inputs. Agriculture has been sound recognized as an ineffective tool of poverty reduction by way of leading to the overall growth in agro-based industries of the world. Farmer’s active involvement due to case studies shows that many technological involvement were abundant through growers after the removal of official input/backup, the productivity of natural resources that the poor manage, the deterioration tortuously connect with poverty, population and environmental [43].

5. Conclusion

Pakistan is a predominant dry-land country. Rapid growth of population depends upon dry-land areas and the agriculture sector supports their livelihoods. Pakistan’s economy is primarily dependent on Agriculture, which mainly consists of production of wheat, cotton, rice and sugarcane and other cash crops. To achieve higher production farmers over-exploited inputs, which led to salinity increase, soil fertility decline and waterlogging. As a result of land degradation, production diminished. In some cases, farmers became criminals due to the hunger of their children. They can not bear the hunger of children so they may take the illegal actions and commit a crime. Due to the overuse of agrarian inputs, such as fertilizer and pesticide, which tend to leave components of poisons in food, people who eat them are likely to suffer from diseases. With regard to policies, we find that since the environmental impacts of mortality and morbidity are generally passed on to the household poverty, policies that improve livelihoods, natural resource management and public health as well as mitigating risks or providing insurance for vulnerable families need to be made. Specific natural resource conservation interventions ought to be taken to encourage the establishment of low-input enterprises based on the sustainable production and use of non-timber forest products, agroforestry efforts, and production of wild indigenous products for meeting dietary needs.
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