



Sustainable Development Policy Institute

Working Paper Series no: W-75

Poverty and Environment

**Damian Killeen and Shaheen Rafi
Khan**

01 June 2002



Poverty and Environment

Damian Killeen and Shaheen Rafi Khan

Working Paper Series # 75
2002

All rights reserved. No part of this paper may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or information storage and retrieval system, without prior written permission of the publisher.

A publication of the Sustainable Development Policy Institute (SDPI).

The opinions expressed in the papers are solely those of the authors, and publishing them does not in any way constitute an endorsement of the opinion by the SDPI.

Sustainable Development Policy Institute is an independent, non-profit think-tank founded for doing research on sustainable development.



© 2002 by the Sustainable Development Policy Institute

Mailing Address: PO Box 2342, Islamabad, Pakistan.
Telephone ++ (92-51) 2278134, 2278136, 2277146, 2270674-76
Fax ++(92-51) 2278135, URL: www.sdpi.org

Table of Contents

Abstract.....	1
Is Poverty to blame for Environmental Degradation?	2
Removing the Barriers	3
Globalisation and Poverty	3
Poverty and Environment in Pakistan: The National Dimension	5
Environmental Justice in the UK: The National Dimension	7
World Summit	8

The Sustainable Development Policy Institute is an independent, non-profit, non-government policy research institute, meant to provide expert advice to the government (at all levels), public interest and political organizations, and the mass media. It is administered by an independent Board of Governors.

Board of Governors:

Dr Amir Muhammad
Chairman of the Board

Mr. Javed Jabbar
President, MNJ Communications Pvt. Ltd

Mr. Irtiza Husain
Director, Pakistan Petroleum Ltd

Ms Khawar Mumtaz
Coordinator, Shirkat Gah

Mr. Shamsul Mulk
Minister For Irrigation, NWFP

Dr Abdul Aleem Chaudhry
Director, Punjab Wildlife Research Centre

Mr. Mohammad Rafiq
Head of Programme IUCN, Pakistan

Dr Zeba A. Sathar
Deputy Country Representative, Population Council

Mr. Malik Muhammad Saeed Khan
Member, Planning Commission

Dr. Pervez Hoodbhoy
Professor, Quaid-e-Azam University

Mr. Karamat Ali
Director, PILER

Dr Shahrukh Rafi Khan
Executive Director, SDPI

Under the Working Paper Series, the SDPI publishes research papers written either by the regular staff of the Institute or affiliated researchers. These papers present preliminary research findings either directly related to sustainable development or connected with governance, policy-making and other social science issues which affect sustainable and just development. These tentative findings are meant to stimulate discussion and critical comment.

Poverty and Environment

Damian Killeen and Shaheen Rafi Khan

Abstract

The environment is the source of survival for poor people. Denial of basic necessities constitutes absolute poverty; unequal access to them represents relative poverty. Clearly, the poor prey upon natural resources only when vested interests drive a wedge between them and their natural birthright. This is as true at the national level as it is globally. In fact, national governments often collude with global corporate giants to push an economically lucrative but environmentally destructive economic agenda. While this vicious nexus is difficult to reverse, efforts to address it must become an integral part of the agenda for the World Summit on Sustainable Development (WSSD).

The key issues are:

- *The integration of human rights, equality of opportunities and equitable sharing into models of sustainable human development*
 - *Assessing, respecting and utilizing indigenous knowledge and technologies*
 - *Inducting poor people (both in the north and the south) in defining these models as well as planning and implementing them*
- *Transiting from ever-increasing consumption to sustainable consumption, which means reducing over-consumption and increasing under-consumption*
- *Increasing north-south flows of:*
 - *Environment-friendly technologies*
 - *Financial resources*

Despite the linkage of poverty and environmental concerns at the level of macro policy and locally there is no consensus that the interests of the poor and of the environment are mutually compatible. Ambivalence about this relationship exists amongst those whose prime concern is environmental as well as amongst those most concerned with poverty eradication. Without international agreement on what should constitute the maximum and minimum levels of sustainable living standards it is difficult to see how this ambivalence can be resolved.

The environment is the source of what every one of us needs to survive - air, water and food; it is also the source of the materials we require to take our lives from pure survival to subsistence and beyond - shelter, clothing, tools and the infrastructure of collective human settlement. The absence or denial of these basic necessities constitutes absolute poverty. Unequal access to basic necessities and other environmental resources is the foundation of relative poverty. In addition to being excluded from access to basic resources, the poor are also most likely to be subjected to the degrading or polluting impacts of the consumption patterns of others. In industrial and post-industrial societies this may take the form of exposure to higher levels of toxicity in the air, water and earth. Where local sustainable patterns of agriculture are diverted to monoculture for the global market, the breaking of traditional fertility cycles is associated with negative changes in social structures and economic relationships. All

of these are directly associated with worsening health profiles and earlier morbidity amongst the poorer populations.

Whilst the linkage between the social, economic, environmental and political dimensions of sustainable development is clearly acknowledged in Agenda 21 and the need for poverty eradication is recognised, this is only rarely carried forward into integrated development programmes. The European Commission, for example, whilst promoting the production of National Action Plans for combating social exclusion and poverty and also promoting a European approach to sustainable development, does not seek for these to be integrated in any meaningful way. Global efforts through the United Nations to reduce or cancel the indebtedness of ‘developing’ countries and to increase levels of aid are a significant contribution towards addressing current imbalances but do not address the root causes of why these imbalances exist. These questions have been most positively addressed across the world through the Local Agenda 21 process but with a questionable impact on the major political and economic barriers to sustainable development.

Barriers also exist between those most concerned with these issues. Environmentalists are concerned that meeting the demands of poorer people for improved standards of living will contribute to increases in the unsustainable consumption that they are seeking to reverse. Poverty activists, both North and South, are concerned that universally applied demands for reduced energy consumption will serve only to further exclude the poor from the benefits that the wealthy have already achieved. Yet there are also many examples of good practice across the world – such as the promotion of localised food economies and improved domestic energy efficiency- that are simultaneously addressing poverty reduction and environmental degradation. There are lessons to be learnt and adapted for adoption and replication elsewhere, and a general need to monitor and evaluate how multilateral agreements and institutions relate to these initiatives.

Is poverty to blame for environmental degradation?

When people living in poverty are asked to identify their priorities, care for the environment or the need for sustainable development are rarely at the top of their lists. Housing, feeding and clothing the family, education for their children and care in their old age are much more significant concerns. Both production (or employment) and consumption patterns are determined more by these basic needs than by any consideration of their longer term impact. The poorest people are sometimes seen as complicit with those forms of economic activity in which the environmental costs of production are displaced onto the public purse or into the future.

This ignores the extent to which people living in poverty are able to exercise choice in their productive or purchasing behaviour and the degree to which this is determined by more powerful players in the local and global markets. Where employment is at a premium any work is an advantage whatever the potential risks it poses to the planet (or to oneself); where a family has to be fed, the most filling food and the cheapest protein will be preferred whatever its means of production; where geographical isolation or a lack of transport infrastructure is an issue, people will use vehicles which are energy inefficient to access employment and low prices.

This is not to suggest that people living in poverty are content with these choices or that they are unaware of the differences between their own lifestyles and those of others who are more advantaged. Whilst it is sometimes suggested that poorer people behave the way they do because they lack

education or have lost basic skills, the evidence often shows that this is not the case. A major part of the experience of Local Agenda 21 and of more specific anti-poverty initiatives has been that the poorest people can be the most willing to explore and adopt new ideas and ways of organisation and work. This is particularly the case if, by taking the risks of innovation, they are not at the same time disenfranchised from the means of meeting their basic needs. It is an irony of the sustainable development process that energy efficiency programmes or collective, self help initiatives, such as food co-operatives (box schemes) and credit unions, which were initially developed in response to the needs of poorer communities are increasingly being adopted by the more advantaged to enhance their own lifestyles.

Removing the barriers

Poorer people are attracted to more environmentally sustainable activities when they see that adopting them will enable them to improve their standards of living through the use of their own, self-directed, labour and through improved co-operation with other members of their community. For many, who have to make efficient use of whatever resources come to hand on a daily basis and who understand only too well the damage caused by money lenders, the idea of not mortgaging the future for today's consumption seems no more than common sense.

But there are real barriers to making this common sense a reality. By definition, poorer people lack capital in the form of land or investments and are excluded from many financial services; patterns of settlement, travel to work and the changing demographics of family and social life can make collective endeavour more difficult; systems of welfare and taxation, through the operation of 'poverty traps' can penalise initiative and undermine prospects for longer term success. Each of these barriers is capable of being addressed. However, to do so requires significant changes to be made in the current distribution of resources and power, including gender relations in households and in the wider economy. The challenge to the promoters of sustainable development is whether or not they are prepared to take on board the vested interests that sustain the inequitable and unsustainable status quo.

Globalisation And Poverty

It is a commonplace of much of the debate about sustainable development that these vested interests are now 'globalised' in a way that transcends the authority of individuals, local communities, national government's or international treaties. The concentration of global trading powers in the hands of a relatively small group of around 500 companies is associated with increasing poverty and inequalities in both the developed and developing worlds as well as with major environmental degradations and the threatened exhaustion of irreplaceable natural resources. For some, the acquisition of power by ever smaller numbers of these companies has replaced the conventional history of relationships between nation states as the dominant narrative of human kind's increasingly destructive presence on Planet Earth. The frustration of protestors at Seattle and Genoa are expressions of the powerlessness felt by many to reverse this process of the increasing concentration of economic and political power in the hands of the few.

However, there is nothing new or non-historic about globalisation. Ever since merchants realised that personal and then political empires could be developed through the acquisition and exploitation of the natural resources and labour of 'foreign' peoples we have seen the lifestyle costs of the more powerful

transferred onto those less able to exercise individual and national choice. It is only the scale that has changed. It has also long been the case that economic power and political power have colluded nationally and internationally for mutual benefit to the exclusion of indigenous populations and of the poor. National governments are active partners in transferring powers from themselves to globalised companies through processes of regulation, deregulation, investment and subsidy; their hope in doing this is to achieve competitive advantage in the global market and to attract the benefits of economic growth. For many centuries these benefits have accrued to northern and western countries to the disadvantage of those in the east and in the south.

Free market capitalism, is credited with being the dominant means of achieving economic growth worldwide, except that its successes do not always derive from market freedoms and those who contribute to creating success do not always equitably share the rewards it generates. Whilst the free movement of investment capital across the world is actively encouraged, a corresponding free movement of labour is disparaged and legislated against as 'economic migration' Whilst the economies of developing countries are increasingly opened up to imports from developed countries, such as alcohol, tobacco, soft drinks and fast foods, those same countries are prevented from exporting their own produce through the 'competition' policies of the World Trade Organisation.

Unable to develop their own economies without external investment, poorer countries find that this investment is tied to requirements to 'liberalise' with the consequence that traditional patterns of trade, exchange and barter are undermined. Debt repayment levels mean that \$1 loaned to a developing country will require that country to generate \$9 before the debt burden can be met. Unequal access to the information technology that is driving much of this economic development contributes significantly to the lack of a level playing field. The consequences of this 'unfree' global market capitalism is that the rewards increasingly go to the money managers and those, such as politicians, who ease their way rather than to those who create wealth through their own labour and use of the resources that are natural to where they live. The resistance to the Jubilee 2000 international debt cancellation campaign by wealthy countries, despite the successes that the campaign has achieved, bear eloquent witness to the priorities of the major economies and the power that they feel entitled to exercise over those who are less advantaged.

Global capitalism, in its recent incarnation, is an expression of the view that market mechanisms underpin and supersede all moral and ethical considerations and that markets are, in some 'invisible' way, self-correcting to the benefit of everyone. The role of governments, therefore, should not, theoretically at least, include interference in the operations of the market. This view has not been born out by the evidence of the increasing disparities between countries and between the widening income inequalities that have developed between the rich and the poor in the developed world. The rising tide of economic growth has not lifted all boats and the trickle down from the successful entrepreneurs towards the less able has not occurred. This has become increasingly recognised by, amongst others, the International Monetary Fund and the World Bank together with the forgotten observation of Adam Smith that a free market requires a 'social foundation' of rules, incentives and values if it is to succeed. What these rules, incentives and values should be for the 21st century and beyond is crucial to the debate about sustainable development.

Globalisation is not, of itself, a negative phenomenon if it enhances our potential to act on a global scale to eradicate poverty and hunger and to share and care for the resources of nature more equitably and sustainably. But, if globalisation is to be a force for good, its 'social foundation' needs to be secured. Whilst this is an issue for World Summits and major international conventions the social

framework for global developments is also a matter for local communities, regions and nations. A measure of the negative impact of global capitalism to date is the extent to which the discussion of such issues has become devalued and along with it respect for and participation in political activity. The idea that the economic role of governments is, primarily, to provide the context in which markets can operate freely has become so engrained that the mark of good government now is to offer low taxation and low public spending whatever the distribution of wealth and the clearly apparent levels of need. This constitutes an abdication of leadership by politicians who are aware of the weaknesses and dangers of unfettered market capitalism in the long term but who are too closely associated with its current beneficiaries in the short term to confront the problems created by their behaviour. The challenge of leadership as we approach the next World Summit will be for politicians to articulate a global code of conduct for sustainable development, together with the measures for policing those situations when it is exceeded.

Poverty and Environment in Pakistan: The National Dimension

The vicious spiral of poverty and degradation, referred to as the poverty-environment nexus, is rooted in the absence of sustainable human development (SHD). Simply, SHD means development which is efficient, equitable and sustainable in terms of resource use, resource access and resource resilience. 'Resources', used in the generic sense refer to capital, human and environmental resources. In Pakistan, for example, low financial allocations for conservation and non-consultative and extractive management practices have led to increasing environmental degradation and pollution.

A cyclical, downward spiral defines the relationship between poverty and environmental degradation. In the first place, poverty increases the vulnerability of the poor to degradation. Second, by restricting choices and entitlements for the poor, it turns them into potential predators of natural resources. However, the converse of this is that limited choices also create an impetus for nurturing resources and using them in a sustainable manner. A credible construct, which contextualises the poverty-degradation relationship is probably a blend of the two. In other words, poverty does not necessarily induce degradation but if it does this reflects unavoidable responses rather than deliberate acts.

SHD also has management implications. The advantages of responding to environmental problems through cooperation, rather than confrontation, are apparent. Cooperation converts a zero, indeed, negative sum game into a win-win situation, where all can share the benefits of resource conservation and reduced pollution. In terms of organizational responses, environmental management has a preventive, integrative and inter-generational aspect. It requires behavioural and organizational changes. Its professional ethos is 'husbandship'—more respectful cultivation and protection of plants, animals and the land. It calls for partnerships between governments, NGOs, the private sector and communities.

The term management is used here in its eclectic sense: embracing the entire range of laws, rules, regulations, as well as organization culture. The case of forestry below illustrates how stakeholder confrontations can give rise to adverse environmental and political consequences. Communities become environmental predators and, in extreme cases, outright conflicts can ensue.

Forestry Management: The Source of Predation and Conflict

The primary forests in the Northern Areas and the North West Frontier Province (NWFP) have many important economic uses and are a source of livelihoods for communities. In addition, many ecological and environmental benefits and imperatives are associated with them. The data shows a rapid decline in both coverage and the quality of forest stands. Such deforestation has led to a spate of onsite and downstream ravages, such as biodiversity loss, erosion, flooding and dam sedimentation.

The root cause of deforestation and degradation lies in forest management practices, which have focused more on economic than on environmental utility. Such practices also deny community subsistence needs. Colonial governments originally weakened community rights to the use of forest resources. Usufruct rights continued to remain but were heavily proscribed. Further, community management traditions, already fragile, have eroded with new opportunities for employment and out-migration. Also, demographic and development pressures have forced communities out of their ancestral lands into marginal areas, where competition for resources is severe, resulting in further violations of indigenous property rights.

The management system has been unable to cope with these changes. The conflicting interests of commercial loggers, private developers, government and military agencies, hunters and impoverished communities have placed it under relentless strain. The forest department tends to choose the path of least resistance, coming down with a heavy hand on the disempowered communities and colluding for personal gain and profit with vested interests. Officials have become increasingly vulnerable to outside economic inducements, as opportunities for financial and professional betterment become hostage to fiscal insolvency. The situation contains the seeds of conflict, with communities forced to act as predators, rather than as guardians of the commons.

While there is little doubt that under the presently hostile management and tenure regimes, communities are showing a propensity to raid forest resources, their activities pale in comparison with the activities of the so-called 'timber mafia': commercial loggers willing to undertake illegal logging driven by rising timber prices. The timber trade also demonstrates a distinct anti-community bias; while communities are entitled to a substantial share of revenues (royalties) from the logging in *guzara* (community) forests, active collusion between the mafia and the forest department results in appropriation of the bulk of these royalties. This has given rise to conflict situations in the remote Northern Areas and parts of the NWFP.

Dir-Kohistan in the Northern Areas is one such example. After independence its rich forests were declared state property and the communities were promised a 15% royalty in the income from the forests. Commercial logging began on a large scale. Initially, this was done through contractors, who cut more trees than the legal limit, did not share the proceeds and went so far as to disallow communities, their traditional subsistence rights. Discord began as early as the 1970s, erupting into outright violence, when authorities resorted to force and shot dead a number of community leaders. This led to the abolition of the contractor system, which was replaced by the Forest Development Corporation (FDC). The community share of the royalties was increased to 60%. This was an enormous windfall, provided the communities were given their due share. However, very little of this windfall filtered down to them.

Growing resentment against the government, the FDC and the contractors finally came to a head in the early 1990s. Village youths banded together to form the "Kalkot Youth Welfare Society (KYWS)." They set up a manned check post to stop all movement of timber outside the valley and both the written and spoken rhetoric became confrontational. The government attempted to diffuse the situation initially. It set up an Inquiry Committee in 1997 to investigate the community's grievances. The findings of the committee vindicated the

community's stance and advised redress but the district administration failed to act upon its recommendations. Encouraged by its moral victory, the KYWS took its resistance to a new level. A smuggler was shot dead at the check post by the community guards, new check posts were set up and the society organized peaceful marches and sit-ins, first locally in Shringal, Dir and Timergarah and eventually in the provincial capital, Peshawar. However, no resolution of the problem is in sight. The provincial and district governments have adopted a hostile stance, accusing the communities of taking the law in their own hands. An uneasy stalemate prevails at present, with a real risk that the situation will escalate into large-scale conflict.

Environmental Justice in the UK: the National Dimension¹

One country or one generation can impose environmental injustices upon another by taking more environmental resources than they are proportionately entitled to and leaving other countries to get by on very little. Developing countries also suffer from the appropriation of environmental resources by richer countries. The UK is one of the richest 20% of countries that use 80% of global environmental resources.

These injustices are also evident within the UK. Even in rich countries, there are major environmental problems which have profound impacts on people. These impacts are borne disproportionately – the available evidence strongly suggests that poor people suffer from the worst environmental conditions (see box 1).

Box 1: Examples of environmental injustice in the UK

Pollution

Factories emitting toxic pollutants are located with disproportionate frequency in poor communities. Research that compares the government's data on factories that pollute the environment with the income data for particular areas shows that:

- There are 662 factories in the UK in areas with an average household income of less than £15 000, and only 5 in postcode areas where the average household income is £30 000 or more.
- The more factories there are in an area, the lower the average income. In Teesside, one area has 17 large factories. The average income in the area is £6 200, 64% less than the national average.
- In London, more than 90% of polluting factories are in areas with below average income, and in the North East the figure is over 80%.

Transport

A recent government inquiry into inequalities in health noted that 'The burden of air pollution tends to fall on people experiencing disadvantage, who do not enjoy the benefits of the private motorised transport which causes pollution'² As with pollution, road accidents affect the poorest people worst. Children in social class 5 are five times more likely to be killed in road accidents than children in social class 1.

Policies as well as impacts can be deeply unjust. Substantive injustices are caused, in part, by the way policies are developed. For example, waste disposal policies are not designed to hurt poorer communities, but can do so through the decision-making process if wealthier groups can affect decisions more easily and avoid any risk of harm. In 1998, residents of Greengairs, a relatively poor community of Scotland, found that a local landfill operator was accepting toxic waste from Hertfordshire in England, a much richer area. Dumping of this waste is illegal in England, but regulations are less strict in Scotland. Community campaigning brought an end to the

1 This section draws material from Seymour, J ed. (2000) *Poverty in Plenty: A Human Development Report for the UK* London: Earthscan.

2 Acheson, D et al (1998) *Independent Inquiry into Inequalities in Health Report* London: The Stationery Office.

dumping and also secured other environmental and safety improvements, but inadequate enforcement of regulations, derisory fines and poor identification of pollution levels are still major problems.

An analysis of current UK performance shows a lot remains to be done. The UK has major environmental injustices, with poorer people in the UK suffering worse environmental impacts and having less access to basic resources than their richer counterparts. Environmental injustice is a component of poverty and inequality in the UK. The UK is also imposing major environmental injustices on other countries and future generations.

The extent of environmental justice in the UK effectively demolishes the argument that the poor have less reason to care about the environment, because poorer people live in the worst environments and their quality of life is reduced as a direct result.

‘Our conception of environmental justice therefore brings together the need for global and inter-generational equity in resource consumption and ecological health with a priority to act with those who are the victims of that inequality in the present. No less than a decent environment for all, no more than our fair share of the Earth’s resources.’³

World Summit

The World Summit on Social Development to be held in Johannesburg in 2002 aims to promote an integrated approach to the social, economic and environmental dimensions of sustainable development. What is the relevance of this event to people suffering poverty and environmental degradation across the world? Since the Rio Summit in 1992 there has been a plethora of debate about how the values and principles expressed at this and subsequent summits should be realised but the extent of environmental degradation and the gap between the poorest and the wealthiest have continued to increase. Is there a political will to confront the many conflicts of interest that undermine progress towards justice and equity?

One test of this willingness might be an effort Summit by national governments at the 2002 to agree a range of practical policy mechanisms that would be supported globally and that would enable the poorest and the weakest to see that the world community is upholding their interests. At an Expert Meeting on the Social Dimension of Sustainable Development held in Sweden in 1998⁴ the participants identified some core values and principles and a framework for a ‘global social policy system’ that, together could form the basis for a Summit that produces real benefits. They proposed that –

- Global responsibility is a necessity.
- Poverty, inequality and exclusion are violations of human rights.
- Respect for human diversity is a cornerstone of social development.
- Social responsibility is everybody’s responsibility.
- Children first – distant future generations later.

They identified the goals of development as –

1. Enabling environments that include e.g.
 - economic opportunities including the enhancement of opportunities for women and people with disabilities.

3 Scandrett, E, McBride, G and Dunion K (2000) *The Campaign for Environmental Justice in Scotland* Edinburgh: Friends of the Earth Scotland.

4 Putting People at the Centre of Sustainable Development, 1998, Ministry of Social Affairs and Health, Finland, ISBN 951-33-0775-1

- Focus on employment generation.
 - Good governance, including development of democratic institutions; and
 - Accessible and healthy built environment.
2. Improved human security, including access to basic social security and basic social services for all.
 3. An inclusive society for all people.
 4. Eradication of human poverty.
 5. An ‘inclusive world for all nations’ through the strengthening of regional and global management arrangements.

Finally, the experts proposed an outline ‘global social policy’ agenda which could enable these goals to become possible.

- Active new human-security policy including the prevention of economic, social, ecological disturbances in addition to the present peace-keeping focus of the military dimension.
- A continuous forum for global social-sector policy dialogue which would keep social, economic and ecological issues on the same agenda.
- A universal human and social rights enforcement system with accessible (regional) institutional arrangements.
- Management of global environmental issues.
- Management of international trade and financial transactions.
- Management of social and labour standards.
- Management of global “taxation” and redistribution of incomes.
- Debt management and debt relief systems.
- Development support (capacity building).
- Last resort safety-nets and humanitarian aid.
- Civil society involvement arrangements.
- A mechanism to manage the inclusion of agreed upon principles and measures into national legislation and their follow-up.

The specific measures proposed in this agenda are controversial but they are a constructive attempt to bring social, economic and environmental/ecological considerations together in a way that our global institutions are seeking to achieve. Across the world, local, regional and national governments are setting themselves targets that are consistent with this agenda but their efforts are undermined by the more damaging aspects of free trade and by a development culture based on continuous growth and international competition. The search for advantage between individuals, social groups and nations is at the root of poverty and pollution. As the human race begins to extend its ecological footprint to other areas of the solar system will we spread waste, conflict and injustice or will our impact be a benign expression of the sustainable development that we are committed to achieving?

SDPI is an independent non-profit research Institute
on Sustainable development

Mailing Address: PO Box 2342, Islamabad Pakistan

Street Address: 3rd Floor, Taimoor Chamber, 10-D West,
Fazal-ul-Haq Road, Blue Area, Islamabad.

Telephone: +(92-51) 2277146
2278134 2278136 2270674-6

Fax: +(92-51) 2278135☒

URL: www.sdpi.org e-mail: main@sdpi.org