EU Thematic Programme for Environment and sustainable management of natural resources, including energy

Recommendations for Developing National Action Plans: The Sustainable Livelihood and Natural Resources Management, Kyrgyzstan

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Project: Poverty **A**lleviation by **M**itigation of **I**ntegrated high-mountain **R**isk (PAMIR)

June, 2013, Vienna

pamir
Poverty Alleviation by Mitigation of Integrated High-mountain Risk

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Acknowledgements

Our thanks go out to all those who gave freely of their ideas and have assisted us in organizing and conducting the meetings during this study. We are grateful to all the experts in the field of natural resource management (NRM) and disaster risk management (DRR) from Tajikistan, who contributed to our Delphi survey. We are particularly grateful to those who have provided their inputs and perceptions while conducting the Delphi survey. Thanks to PAMIR project partners and staffs; many individuals who shared their experiences and provided their feedback at the end of the study period. This study would not have been possible without their assistance and genuine participation. Our special thanks to the Delphi study coordinator, Ms. Tolkun Jukushova for her excellent translation, organization and contribution to the Delphi survey in Kyrgyzstan. A special mention in this regard goes to Ms. Muazzama Marufi, Mr. Umed Aslanov and Ms. Julia Weber from HWA for their contribution for providing opportunities and organizing the meeting in connection with the project.

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Abbreviations and Acronyms

ADB	Asian Development Bank
AKN	Aga Khan Network
ANDS	Afghanistan National Development Strategy
BOKU	University of Natural Resources and Life Sciences
CARE	Cooperative for Assistance and Relief Everywhere
CBNRM	Community-based Natural Resource management
CBO	Community-based Organization
CDS	Country Development Strategy
DFID	Department for International Development
DRR	Disaster Risk Reduction
EC	European Commission
ESMF	Environmental and Social Management Framework
EU	European Union
FAO	Food and Agriculture Organization
FUG	Forest User Group
GDP	Gross Domestic Products
GESI	Gender Equity and Social Inclusion
GTZ	Gesellschaft für Techniche Zusammenarbeit
HFA	Hyogo Framework for Action 2005–2015
HWA	Hilfswerk Austria International
ICIMOD	International Centre for Integrated Mountain Development
IDS	Institute for Development Studies
IKE	International Key Expert
INRM	Integrated Natural Resource Management
JFM	Joint Forest Management
LDCs	Least developed countries
M&E	Monitoring and Evaluation
MDGs	Millennium Development Goals
MRI	Mountain Research Initiative
MSDSP	Mountain Societies Development Support Programme
NAPs	National Action Plans (NAPs)

NCSA	National Capacity Needs Self-Assessment for Global Environmental Management
NGO	Non-governmental Organization
NAPA	National Adaptation Programme of Action
NEPA	National Environmental Protection Agency,
NRM	Natural Resource Management
OECD	Organisation for Economic Co-operation and Development
PAMIR	Poverty Alleviation by Mitigation of Integrated high-mountain Risk
PAR	Participatory Action Research
PRS	Poverty Reduction Strategy
PRSP	Poverty Reduction Strategy Plan
R&D	Research and Development
SFM	Sustainable Forest Management
SLM	Sustainable Land Management
SLNRM	Sustainable Livelihood and Natural Resource Management
SMLM	Sustainable Mountainous Land Management Model
SNAP	Strategic National Action Plan for Disaster Risk Reduction
SPNA	Specially Protected Nature Areas
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
USGS	United States Geodetic Survey
WB	World Bank
WSS	Water Law and the Water Sector Strategy

Chapter 1

EXECUTIVE SUMMARY

The study report has been prepared as a part of the **Poverty** ***Alleviation through Mitigation of Integrated high Risk (*PAMIR*)*** project and analyzes the existing policy provisions and development of national initiatives and strategies of sustainable livelihood and natural resources management that can enhance and contribute to disaster risk reduction, poverty reduction, sustainable land use and forest management and environmental sustainability of Central Asia in general. Hilfswerk Austria international (HWA) has been working in Tajikistan since 2001 as a humanitarian support and is currently implementing a European Union (EU) funded project with its implementing partners PAMIR project (University of Natural Resources and Life Sciences (BOKU), FOCUS Humanitarian Assistance (Affiliate of Aga Khan Network), Tajikistan/Afghanistan and Mountain Societies Development Support Programme (MSDSP) in Kyrgyzstan (Affiliate of Aga Khan Network). In the Pamir region, several other organizations are working to promote sustainable development and reduce poverty with incorporating mountain perspectives and in doing so, increase community resilience. Therefore, the study also contributes to identifying the elements of sustainable livelihood and natural resource management and the way in which the interaction with the help of stakeholders' perception is structured. The study also contributes to a coherent debate about the many factors that affect Disaster Risk Reduction (DRR), Forest Management, Land Use, Biodiversity and Pasture Land Management, Environment Management, Livelihood promotion and Co-operation, Co-ordination and other cross-cutting issues. The other objectives of the study are to recommend strategic entry points, to support natural resources management and livelihood at the regional level (country specific) and to provide a proposal and a recommendation for Sustainable Livelihood and Natural Resources Management (SLNRM) in the regional context which will help to develop and agree on next steps during the upcoming regional conference, Aug, 2013.

In this context, the report has been focusing on facilitating and developing the national action plans (NAPs) for disaster risk reduction, poverty reduction and environmental protection in Afghanistan, Kyrgyzstan and Tajikistan in the framework of ***Sustainable Livelihood and Natural Resources Management.*** Three countries (Afghanistan, Kyrgyzstan and Tajikistan) were selected to conduct studies and identify useful information for the development of

national standards in the framework for sustainable livelihood and natural resources management. The specific objectives of the study were to gather ideas, information and feedback from the experts, determine the extent of consensus among the survey participants, and to establish the priority or importance assigned to each of the items/issues (hereafter indicators) related DRR; Forestry, Land Use, Livelihood for each country. This process was made possible thanks to the participation of diverse groups of stakeholders at the national level, especially the scientific community, experts, researchers, government officials and the members of civil society.

In order to identify the key recommendations on sustainable livelihood and natural resources management, several face-to face meetings and one national workshop among the key stakeholders in each country were organized. The purpose was to share information and knowledge as well as to develop the study methodology and common approaches for addressing all three dimensions: poverty reduction, disaster risk reduction and environmental sustainability. The research ideas and the methodology were discussed at a preparatory meeting held in Dushanbe on December 2011 and Bishkek on January 2012. The detailed research design and the plan for the desk study were reviewed and the Delphi survey was shared at an expert meeting held in Vienna from 18 to 20 April, 2012. The Delphi survey was conducted between June and Nov 2012 and preliminary findings of the study were presented in the national workshop which was held in Osh, Kyrgyzstan (Aug 2012), Dushanbe; Tajikistan (Sep 2012) and Kabul (Dec 2012). This document is now being circulated among the project co-ordinator and all project team leaders for their genuine inputs, comments, insights and observations concerning the study.

During the 14 months of the implementation period, including 40 days consultancy job, the activities were organized in four different phases as shown below:

Phase	***Main tasks addressed***	***Period***
Phase I	Field plan and design of the study	Oct-Nov, 2011
Phase II	Desk study, developing study methodology and face to face meeting with stakeholders and project staff workshop	Nov 2011 to Jan 2012
Phase III	Details concerning the development of the survey questionnaire and methods discussed in expert-meeting and scientific forum. Finalizing the details for the Delphi survey procedure and questionnaire	Apr-May, 2012

Phase IV	Conducting the Delphi survey and presenting the preliminary finding at a national workshop	June to Dec, 2012
Phase V	Analysis and write up of the reports for each country	Jan-March, 2013

Phase I

With PAMIR staff, the international key expert (IKE) prepared a preliminary methodology based on the available information and national strategies and actions plans for poverty reduction, disaster risk reduction and forest and land use management in Afghanistan, Kyrgyzstan and Tajikistan. Under the supervision of project co-ordinator, one consultant was recruited and three working groups in each country were proposed to assist and guide the study. The preliminary Delphi survey methodology was presented in Tajikistan and Kyrgyzstan and discussed for further development in phase II.

Phase II

The study team conducted office visit and face to face meetings with policy makers and experts, who are directly working in the field of DRR, Poverty Reduction Strategy Programme (PRSP) and Sustainable Forest Management (SFM), to get ideas and identify the major areas of concern in formulating the Delphi questionnaire and personal commitment, as well as to obtain feedback for supporting the research survey. The team met more than 30 experts from two countries personally and received their ideas and shared the study methodology along with the conceptual recommendations for the development of national action plans. The stakeholders' meetings and office visits offered the partners opportunities to share information about the PAMIR project and the preliminary finding and activities. They enabled information exchange regarding the possibilities for the widespread practice of project initiative in developing the regional strategy in Central Asia.

Phase III

Additionally, the methodology of this study was shared in an expert meeting/PAMIR project, April 18-20, 2012, Vienna, Austria and MRI Key Contact Workshop Meeting, 21 April 2012, Vienna, Austria. It was a rigorous discussion in small groups with scientists' related methodological parts. The final Delphi questionnaire along with the evaluation criteria was fixed, based on the received feedback. The meeting with scientific team helped improve the rating scale of indicators and provided scientific validity and more practical means.

Phase IV

The main idea of the proposed Delphi Survey was to initiate the national process of developing national action plans for DRR, PRSP and sustainable natural resources management for each country. The task team members for Delphi study consisted of international key experts, team leaders for the three countries, HWA country representatives, Dushanbe and an International Project Co-ordinator for PAMIR project and formed three study committees with members from each country. Being a country co-ordinator from Delphi study, the team leader of PAMIR project collected and updated the list of representatives of science, government authorities, and stakeholders from different disciplines constituting the experts' panel. Members of the Delphi study were invited to participate in the study based on a screening of their individual knowledge and experience. The Delphi panel used a five-choice Likert scale (e.g. 1=very low applicable, 5 =very high applicable) for assessing the applicability and overall importance of each indicator with respect to the national, regional and local level.

Table 1 shows the total of 104 respondents (23 from Afghanistan, 28 from Kyrgyzstan and 53 from Tajikistan) including more than 35% females and consisting of representatives of government (38%), international and non-governmental organizations (48%), universities (6%) and associations (9%). Out of the 104 respondents, experts from the natural resource management sector were in the majority, making up as much as 33%. Of the rest, 18% had an environmental background, 14% represented social sciences, 10% were experts in economics, 6% represented politics and 20 % were categorized as coming from politics and other areas.

Table 1: Respondents of Delphi survey from three countries (Source: Delphi survey, 2012)

Gender	**Afghanistan**	**Kyrgyzstan**	**Tajikistan**	**Total**
	Received Responses	**Received Responses**	**Received Responses**	
Female	5(21.7%)	12 (42.86)	19 (35.8%)	36 (34.6%)
Male	18 (78.3%)	16 (57.14%)	34 (64.2%)	68 (65.4%)
Affiliation	**Received Responses**	**Received Responses**	**Received Responses**	**Received Responses**
Government	2 (8.7%)	6(21.43%)	31(58.5%)	39 (37.5%)
I/NGOs	18 (78.2%)	15 (53.57%)	17 (32.1%)	50 (48.1%)
University	2 (8.7%)	4 (14.29%)	0	6 (5.8%)
Association	1 (4.3%)	3 (10.71%)	5 (9.4%)	9 (8.7%)
Expertise	**Received Responses**	**Received Responses**	**Received Responses**	**Received Responses**
NRM	3 (13%)	9(32.14%)	22 (41.5%)	34 (32.7%)
Environment	2 (8.7%)	7(25%)	10(18.9%)	19 (18.3%)

Social science	4(17.4%)	3 (10.71%)	7 (13.2%)	14 (13.5%)
Economics	3 (13%)	1(3.57%)	6 (11.3%)	10 (9.6%)
Politics	4 (17.4%)	1(3.57%)	1 (1.9%)	6 (5.8%)
Others	7 (30.45)	7(25%)	7 (13.2%)	21 (20.2%)
Total	**23 (100%)**	**28(100%)**	**53 (100%)**	**104 (100%)**

Phase V

The key findings and outputs of the study were developed based on the analysis of the Delphi survey and policy documents. The Delphi questionnaire has been developed in a structured way and experts provided their personal views on each set of questions. The experts gave their assessments of the indicators, with a view on their importance to sustainable livelihood and natural resource management for proposed countries, as well as assessments of a multitude of related policy measures. The findings are based on the identified indicators for the applicability and importance of national, regional (Province and District) and local levels and feedback from the national workshop. The key elements in target countries concerning disaster preparedness and disaster management, forest management, land use and pasture management, environment management, livelihood and other cross cutting issues, especially framing, were identified. The MDG goals 1 (poverty) and 7 (environmental sustainability) of the PAMIR project were outlined. Developed and tested using practical methodology (hereafter Delphi survey) they are carried out to assess the applicability and importance of measuring elements linked with the development of natural resources and disaster risk management policies and finally to assess and outline the extent to which national action plans should be given high priority as policy options.

KEY FINDINGS

Firstly, the identification of a restricted set of indicators which address livelihood, poverty, disaster preparedness and management, sustainable forest management and land use practices was required. These indicators needed to be linked explicitly to an analytical framework linking natural resources use to rural livelihoods in order to be used for recommendations for NAPs. They must also had to offer realistic prospects of being systematic, measurable and practical in sustainable natural resources management and improvement of livelihoods of Central Asia, particularly in the case study countries (Afghanistan, Kyrgyzstan and Tajikistan).

Secondly, the set of indicators had to be assessed in the three countries, understood to be in a more or less homogeneous agro-ecological or climatic zone of Central Asia each of countries having contrasting legal, social, political and economic endeavors. We have developed a common set of indicators and employed the Delphi survey to assess the set of indicators covering a wide range of natural resources and livelihood management contexts for evaluation of the applicability and importance of sustainability indicators at different geographical scales: National, regional (Province and District for Tajikistan and Kyrgyzstan and Provincial and District for Afghanistan) and local. All the diverse groups of stakeholders and individuals provided their opinions, views and perceptions by giving their preferences for recommending the NAPs.

The study identified several problems/issues, activities and recommendations for each indicator that have hindered risk reduction and early warning initiatives, livelihood promotion, sustainable forest and land use management, environment management, ecosystem management and regional co-operation related to identification of regional agendas, trans-boundary co-operations and human and natural resources. The identified issues related to improving policies and legal frameworks, improving DRR processes, forestry, biodiversity, land use practices, pasture land management, poverty, improving data and joint research efforts, fund allocation, hazard and risk identification, forecasting, modeling, the role of underlying risk factors (underlying vulnerability), improving monitoring and evaluation systems, using rights and equitable distribution, social justice, resource governance, the perennial issue of preparedness, livelihood promotion and environmental management are described.

CONCLUSIONS

In this study, we categorize the 52 identified indicators into six categories: 1) Disaster Preparedness and Management, (2) Forest Management, (3) Land Use, Biodiversity and Pasture Land Management, (4) Environment Management, (5) Livelihood Promotion and (6) Cooperation, coordination and other Cross-Cutting issues. It is evident from the findings of the study that more than 35 indicators were judged as highly important and most of indicators were highly applicable under the criteria 5 (Livelihood Promotion) and Criteria 6 (Cooperation, co-ordination and other cross-cutting issues). In total, more than 29 indicators at national level, 12 indicators at Oblast level, 19 indicators at Rayon and 34 indicators at

local level were found as more applicable than others among the 52 indicators based on the stakeholder judgments. The approaches support enhancing a broader sense of thinking of regional cooperation, reforestation strategy, livelihood issues, good governance, power dynamics, gender, rights and equitable distributions. It can be concluded that SLNRM practitioners have their own perceptions and working definitions and ways of working in different areas including gaining a better understanding of attributes of livelihood and natural resources.

Delphi questionnaire was set up based on the existing policy and strategy documents of each country but it was hard to judge and specify the highest importance indicators or strategy for the specific countries. Although a structured questionnaire was provided in the Delphi process, some respondents made quite different interpretations and objected to specific questions/indicators, the use of terminologies or phrases when defining terms as well as the lack of 'described' definitions. The method is feasible to get the ideas from diverse stakeholders but the trade-off analysis between stakeholders' opinions has been figured out based on the expert opinions. It dramatically reduced the potential for generating new ideas, the views from organizations, political ideology and objective judgment in closed questions.

In Kyrgyzstan, there are more than a dozen policies related to DRR, Forestry, Land Use Management, Environment management, Livelihood and Poverty reduction etc. are/being drafted; including interim policies, Disaster risk management initiatives, National plan for Development of Forestry, Poverty Reduction Strategy Plan, Agricultural Development Policy, Strategy and Action Plan for Sustainable Land Management, Biodiversity policy and national REDD strategy. Linking sustainable natural resources management with rural livelihoods is another critical aspect of the development of the new national action plans. The elements of environment natural resources management, disaster risk management, livelihood and cross-cutting issues should be examined in order to achieve the millennium development goals and equally to consider how progress towards other goals might impact poverty reduction and environmental sustainability.

RECOMMENDATIONS

The study reflects on and recommends developing a clear and coherent common agenda (or set of priorities) for SLNRM by the perceptions and opinions of different stakeholders. The national action plans allow space for the meaningful participation of local stakeholders

including marginalized groups and take into account potentially differentiated perspectives and interests. The national action plans should be focused and foreseen to be carried out over the next decade as integrated global and national initiatives that aim to enhance the management and use of resources, sustainable land user practices, participatory forest management, disaster preparedness and disaster risk management, consideration of afforestation and reforestation concepts/strategy in order to improve livelihoods and sustain natural resources management. Country specific recommendations have been explained in details (see section 4.5 and 5.2). The general recommendations for national action plan are to

- Revise/refine the current disaster risk management, PRSP, Environment, Forestry, Land Use policy, strategies and action plans in partnership with relevant stakeholders to increase ownership and to make it more effectively implementable.

- The mountain ecosystem directly or indirectly supports a large population of Central Asia regions in terms of diverse ecosystem goods and services. Therefore, the need is to continue the supply of these products and services in a sustainable manner to maintain the ecological integrity of the area.

- Identify and test the NRM and livelihood related policy questions to build a common understanding and solve the problems in an iterative and adaptive process to identify future directions and develop a vision, mission, goals and strategies and to focus on the needs of Central Asian member countries and to adjust strategies to take changing circumstances into account.

- Periodic monitoring and assessment of programme priorities and resources allocations in line with national plans such as PRSP, Biodiversity conservation strategy, Sustainable land use plan, national forestry sector plan in order to ensure effective implementation in the specific areas.

- There still remains an urgent need for systematic research on the linkages between environmental stewardship, sustainable land use management, watershed management and risk reduction strategies, regional conflicts and stability in Central Asia as part of a regional environmental agenda. The cross-border initiatives and regional cooperation regarding natural resources management that recognize the need to preserve something for the future should be built.

- Develop appropriate publicly available information dissemination system related to policies, legislation, directives, executive orders, relevant publications, data, programmes and projects at the center and in districts.

- Encouraging partnerships building between appropriate GOs, NGOs, CBOs, civil society organizations (CSOs), development agencies and private sectors for effective planning, implementation of strategic interventions and monitoring of sustainable natural resources and livelihood promotions.

Furthermore, NAPs should consider both upstream and downstream population of the mountain area. This may appear more technical in nature, but is believed to lead to secure livelihood and well-being of the people of the area, while protecting their right to life and property. More attention must be paid to the development of early recovery systems, infrastructure rehabilitation, developing comprehensive monitoring and forecasting models, and ensuring the indefinite provision of basic services in the absence of a state-led alternative. Looking to Pamir regions, the identification of criteria and indicators of Pamir disaster risk, land use and ecosystem along comprehensive plan should be developed focusing especially on the present socio-economic and natural conditions. It is further recommended that the programmes of the different governmental and non-governmental agencies working in the region should focus specifically on the core Pamir areas instead of the mainly accessible and urban areas. For instance, the donor communities, local institutions as well as central government agencies should realize the importance of Pamir regions and should be given priority in programme and planning.

REPORT STRUCTURE

The report is organized in five chapters, which outline essential components of national strategies and action plans for sustainable natural resources management and livelihoods. These essentials include key concepts, strategies, issues, study methods and recommendations that build on the directions set up for poverty reduction, disaster risk reduction, and NRM and livelihood activities. In the first chapter, the executive summary, key findings and way forward based on the findings of study is presented. The detailed approach, case studies methodology including the background, context of the project and the challenges of the research are described in Chapter 2. The general framework of SLNRM is described in

Chapter 3. The findings for each country are described in Chapter 4, which also includes the description of major strategies and action plans and more detailed analysis of strategies for sustainable livelihood and natural resource management and its problems, activities and recommendation in relation to the six identified criteria: Disaster Risk Reduction, Forest Management, Land use, Biodiversity and Pasture land management, Environment Management, Livelihood and Co-operation, collaboration and other cross-cutting issues. Conclusions, recommendations and policy implications of the study are discussed in Chapter 5.

Chapter 2

INTRODUCTION

Sustainable development includes a number of interdependent elements and attributes including social, economic, political, natural resources, equity and environmental. The unifying theme of sustainable development was central to the Rio Declaration signed by 178 countries at the United Nations Conferences on Environment and Development held in Brazil in 1992. Agenda 21, the Programme of Action of the Conference, calls for countries to formulate and adopt notational strategies for sustainable development and to achieve the institutional and resource-based changes for long-term development. In doing so, a number of policies, approaches and strategy plans were recognized as essential requirements. The member countries are developing for taking action on sustainable natural resources management, livelihood, poverty reduction, disaster risk reduction/disaster risk management and environment management in Central Asia, however it is questionable whether it is donor-driven or demand-driven. It has demonstrated the lack of common understanding and comprehensive picture of existing plans and identified the gap in understanding among stakeholders regarding increasing effectiveness and integration of the following components: livelihood, forest/land use management, disaster risk reduction and natural resources management. Some studies substantially support the examination and integration of the linkages between poverty and environment, disaster and poverty, forestry and livelihood options and highlight the emerging issues, challenges and opportunities. It is a rather less consultative stakeholder process of formulating the plan and strategy to integrate environment and disaster risk reduction dimensions. Moreover, there are still no clear road maps for entry points including a better understanding of the social-cultural context and real problems in specific contexts. Therefore, the study supports formalization, reproduction and a comprehensive and transparent process of policy planning for sustainable livelihood and natural resources management. In each country, the demand for multi-disciplinary and multi-stakeholder approaches may enhance the multiple interactions in developing and formulating the national action plans.

Against this background, the **P**overty **A**lleviation by **M**itigation of **I**ntegrated high-mountain **R**isk (PAMIR) -EU funded project aims to generate and appraise knowledge about the linkages between environment, disaster risk and poverty in selected communities alongside

the Pyanj River (Tajikistan/Afghanistan) and Chong Alai valley (Tajikistan, Kyrgyzstan). It aims to increase resilience of mountainous communities to geo-hazards and to provide a platform for negotiating strategies for integration of environmental sustainability into policies among stakeholders of all levels, creating awareness on causes and effects of un-sustainable environment and disseminating knowledge on efficient interventions. The aim of the study was to analyze the existing policy provisions and development of national initiatives and strategies for sustainable natural resources management and livelihood that can enhance and contribute to poverty reduction and environmental sustainability.

The PAMIR project has initiated a series of studies on working packages relevant to the poverty reduction, forestry sector, climate change, disaster preparedness and disaster management plan including: a) Mountain Geo-Risk Assessment Model, b) Sustainable Mountainous Land Management Model (SMLM), c) policy and institutional arrangement and land-use dynamics and tenure system, d) Bio-physical assessment and feasibility of Afforestation in the Pamir regions, and e) Socio-economic and vulnerability and climate impact assessment. In order to support the PAMIR project and develop policy recommendations on effective and multi-dimensions measures, it was necessary to work on the recommendation for developing SLNRM focusing on linkages DRR, environmental degradation and poverty, which has been carried out under work packages 5: increased awareness on linkages between environmental protection, DRR and livelihood among political decision-makers and donor agencies through implementation of sharing processes.

This study presents the methodology used for the case studies on the sustainable natural resources management-livelihood linkages in Afghanistan, Kyrgyzstan and Tajikistan to initiate and accommodate the views of policy makers, development agencies, and stakeholders. The proposed methodology provided a sound and objective basis for information and knowledge sharing among the stakeholders. The findings and the recommendations can be widely disseminated to foster regional cooperation. The study represents a part of the regional approach to integration of DRR and environmental protection for sustainable poverty reduction and environmental sustainability in Pamir region, Central Asia.

APPROACH AND METHODOLOGY OF THE STUDY

2.1 Background

The Pamir Mountains are an extremely isolated high-mountain region which is located at the crossroads between China to the east, Afghanistan to the west, Pakistan to the south, and Kyrgyzstan to the north. It is highly susceptible and well-known as fragile ecosystem in Central Asia with several environmental problems and facing poverty issues. The main reasons due to irrational use of natural resources and subsequent degradation of ecosystem, shrinking forests, degrading agriculture lands which impact and threat of growing social and ecological vulnerability from climate change and loss of bio-diversity. Such negative impacts and natural disturbance ultimately affect sustainable livelihood for the current and future generations. These negative environmental and poverty conditions have recently become global issues and challenges, which are affecting everyone in all corners of the world, causing more frequent and destructive natural disasters, such as erosion, landslides, avalanches and floods. To address these challenges the world's governments committed themselves at the United Nations Millennium Summit to the Millennium Development Goals (MDGs), including an overarching goal of halving extreme poverty and environmental sustainability by the year 2015. In order to promote sustainable development in the Pamirs, facing great challenges from the political, economic, social and ecological perspectives, Hilfswerk Austria International has been working in Tajikistan since 2001 as a humanitarian support and currently is implementing the EU funded project entitled 'Poverty Alleviation through Mitigation of Integrated high Risk (**PAMIR**) in collaboration with the University of Natural Resources and Life Sciences (BOKU), FOCUS Humanitarian Assistance (Affiliate of Aga Khan Network), Tajikistan/Afghanistan, Mountain Societies Development Support Programme (MSDSP) in Kyrgyzstan (Affiliate of Aga Khan Network).

In this context, the governments of the Islamic Republic of Afghanistan, Republic of Tajikistan and Kyrgyz Republic have ratified the MDGs and major international environmental, DRR and poverty reduction obligations and international and sub-regional initiatives which enhance sustainable livelihood and natural resources management. To tackle the environmental degradation and reduce poverty, several strategies and action plans along with relevant documents have been developed in each country (e.g. Country Development Strategy (CDS), Poverty Reduction Strategy (PRS), Disaster Risk Management Strategy,

Environment and Natural Resource Management, NAP for Forestry and several other national action plans).

First, the documents were developed following intensive discussions within the PAMIR project team and comments and feedback were compiled. The study referred to the on-going policy documents, international and national initiatives, which have then been assembled. The standard set of questionnaires on the importance and linkage of livelihood, disaster risk reduction, poverty reduction, environmental and natural resources management was translated in order to gather the ideas and personal views of experts, who are working in respective scientific disciplines. The main purpose of the study is to point out significant policy opportunities and give recommendations for moving the sustainable livelihood and natural resources management agenda forward. In order to do so, the methodological report for developing NAPs on SLNRM was created and presented at the regional steering committee meeting which was held in March, 2012. The participants highly appreciated the methodological concepts and suggested to recommend the elements of sustainable livelihood and natural resources management instead of developing national action plans.

The study has the following specific objectives:

- Identify the relative significance and the important indicators of sustainable natural management and livelihood promotion, as well as the way of interaction based on the stakeholders' perception obtained through a structured and coherent debate about the many factors that affect livelihood, poverty reduction and disaster risk reduction.
- Recommend strategic entry points to support natural resources management and livelihood at the regional level and country specific.
- Provide a proposal and recommendations for natural resources management and livelihood promotion in the regional context, which will help to develop the agreed next steps at the upcoming regional conference, Aug, 2013.

In this context, this report has been prepared as part of the PAMIR project for facilitating and developing the NAPs for DRR, poverty reduction and environmental protection in Afghanistan, Kyrgyzstan and Tajikistan in the framework of ***Sustainable Livelihood and Natural Resources Management.*** Three countries (Afghanistan, Kyrgyzstan and Tajikistan) were selected to conduct studies and identify information needed for the development of national standards in the framework of sustainable livelihood and natural resources management of each country: Afghanistan, Kyrgyzstan and Tajikistan. The specific objectives

of the study were to get ideas, information and feedback gained from experts, and to identify the extent to which consensus among survey participants emerged, as well as the priority or importance assigned to each of the items/issues related DRR; PRSP and sustainable natural resources management for each country. This process was made possible thanks to participation of diverse groups of stakeholders at the national levels, especially members of scientific community, experts, researchers, government officials and civil society.

With the aim of preparing a methodology approach for developing NAPs, the project team and team leaders jointly discussed and shared information on the on-going development in the fields ranging from reducing vulnerability to the risk of disasters within the context of the country development plan and strategy for poverty reduction plan and sustainable forest management e.g. Disaster Risk Management Initiative, which is in line with the Hyogo Framework for Action 2005-2015 (HFA), PRSP-UNDP supported plan and country strategy plan for forestry sector, sustainable land management model etc. The team also discussed all the project activities which can be incorporated based on the experiences of the project e.g. the feasibility study on social afforestation as sustainable mitigation measure, the policy framework studies, the database of structural mitigation works developed as a result of the Hazard and Social Vulnerability Risk Assessment for Natural Resources Management (HSVRA) for 120 villages in Tajikistan, Afghanistan and Kyrgyzstan. The research methods were developed in a participatory manner with input from the project partners, policy makers and donor organization.

2.2 Methodological approach of the study

Workshop: Concept and Development of Methodological approach

The team leaders of the workshop, which was held in Tajikistan on 25-26, Nov 2011, as well as the stakeholder groups meeting held in Nov-Dec, 2011, proposed the research methodology and recommendations for developing the NAPs. It was proposed to form a study team in each country and brought forward an idea to purposely incorporate the diverse views, opinion, judgment and experiences of experts and stakeholders against each set of indicators for sustainable livelihood and natural resource management into the study method. In this context, the Delphi survey and its details methodological process were discussed and it was agreed to conduct the survey to assess a set of generic Criteria and Indicators (C&I) with regard to the applicability and importance of national, regional and local context. The study

team and project team discussed the feasibility from a methodological point of view and its practicality to encourage the participatory process. In general, the expert-led (Top-down, Delphi Survey) approach was designed whereas the proposed methodology identified the role and participation in the action of the various stakeholders and their involvement in developing the national action plans for each country.

Face to face meeting with policy makers and experts groups

The discussion with the several policy makers and expert groups had a purpose of ensuring the adoption of PAMIR project results which would possibly enhance livelihood and natural resources management through information sharing process and integration of the knowledge about environmental protection, DRR and Livelihood among political decision-makers and donor agencies in the project countries. In order to discuss and share the ideas of the research study proposal, the team members conducted face-to face meetings with several organizations and their personnel and increased the capacity of negotiating strategies on integration of livelihood and resources management into poverty reduction among stakeholders. The research team met more than 30 experts from two countries Tajikistan and Kyrgyzstan to share the research concept for developing the NAPs and has received their ideas and feedback. Consultation and engagement of diverse stakeholder groups was essential for the development of future strategies incorporating the major issues in integrating three major components: DRR, PRSP and SFM.

2.2.1 Delphi survey study and set of criteria and indicators

The task team for Delphi study consisted of international key expert, team leaders for the three countries, country representatives of HWA, Dushanbe and the international coordinator of PAMIR project and formed three study committees with members from each country. Being a Delphi country coordinator, the team leader of PAMIR project collected and updated the list of expert panel members consisting of representatives of science, government authorities, and stakeholders from different disciplines (Table 2). The study team and expert panel consisted of representatives of science, government authorities, and stakeholders from different disciplines. The objective of the study was to identify useful information for the development of national standards in the framework of sustainable livelihood and natural resources management for each country: Afghanistan, Kyrgyzstan and Tajikistan.

The Delphi method is based on a structured process of collecting and distilling knowledge from groups of experts by means of a series of questionnaires interspersed with controlled opinion feedback (**Khadka and Harald 2012**). The questionnaires designed to elicit and develop individual responses to the problems posed and to enable the experts to refine their views with the group's work progresses and the option to discuss the findings at the round table meeting. The experts provided their assessments on criteria and indicators, with a view to their importance for mountain societies in proposed countries, as well as assessments on a multitude of related policy measures.

Table 2: The study team members for the Delphi study, Kyrgyzstan

Name	Office Address	Responsible	Email Address
Chiranjeewee Khadka	BOKU University, Austria	Study co-ordinator	Chiranjeewee.khadka@boku.ac.at
Task team, Kyrgyzstan			
Ms. Tolkun Jukusheva	Mountain Societies Development Support Programme (MSDSP KG)	Delphi study co-ordinator	tolkun.jukusheva@akdn.org
Mr. Umed Aslanov	Hilfswerk Austria International	Member	aslanov@hilfswerk.tj
Ms. Gulnaz Jalilova	Hilfswerk Austria International	Member	gulnaz.jalilova@hwa.or.at
Steering committee, Kyrgyzstan			
Ms. Chinara Berbaeva	Ministry for Emergency Situations in Kyrgyzstan	Member	berbaeva@mail.ru
Mr. Elmira Kachibekova	Agency on Environmental Protection and Forestry in Kyrgyzstan	Member	Kachibekova-ela@mail.ru
Study secretariat			
Ms. Muazzama Marufi	Hilfswerk Austria International in Tajikistan	Secretary	moya_jona@yahoo.com

A Delphi methodology has been selected as the most appropriate means to achieve the goals and objectives of the research because it provides a way to solicit and gain experts' consensus on an emerging issue while ameliorating problematic group processes such as bias and pressure (**Hasson et al. 2000, van Zolingen and Klaassen 2003, Landeta 2006**). We applied five features of the Delphi method: anonymity (experts are unknown to each other and nameless), iteration (feedback given at least twice), controlled feedback (appreciation of new ideas), statistical measures (aggregation of individual preferences) and convergence (multiple reverse feedback and final results) (**Khadka and Vacik 2012**). The Delphi process involves: expertise and/or specialization of selected respondents in the subject matter being considered, a process of multiple iterations or repetitions and providing controlled feedback to the experts enabling the experts to reflect and interact via the questionnaire instrument, limiting extraneous information, and insuring anonymity. As the Delphi process is an anonymous one, it has advantages over the normal unmediated face-to-face interactions between participants as the usual problems of group dynamics are thus completely bypassed (**Stewart et al., 1999**).

2.2.2 Study methods and research process

The respondents comprising representatives of government, international and non-governmental organizations, universities, associations, research institutions and freelancers took part in the study. To avoid response bias associated with the interview, the questions were reviewed carefully to avoid misunderstandings and failures based on poor wording. The study kicked-off by June 2012 and at least around 200 experts were contacted in the first round of e-mails from three countries. We did not presume to have generated a complete list of experts as the only suitable respondents for the Delphi process. For example, we first contacted, acknowledging the boundaries and limitations of the system, only those with access to electronic mail and possibility to provide their personal views on the elements. As this kind of survey is quite new in Central Asia and some of experts have no internet access, we provided them with printed questionnaires in order to overcome the technical problems and increase the number of respondents. The total of 104 respondents (23 from Afghanistan, 28 from Kyrgyzstan and 53 from Tajikistan) replied and most of them participated in the national workshop to provide their final inputs. An invitation letter, materials about Delphi background as well as Delphi questionnaire form were sent to all listed individuals by the Delphi coordinators of each country. Delphi coordinator sent out the set of Delphi survey documents (in order: Official request letter_1, Background report_2, List of indicators_3, Personal details of expert_4, Delphi questionnaire_5) to all listed individuals by 7th June, 2012. In order to achieve common understanding, we have discussed each element of the questionnaire set within the study panel. In the beginning, 82 indicators were formulated for pre-testing. They were later refined and developed into 52 indicators comprising the final set for the survey. The research team did not collect specific characteristics of individual respondents to fulfill ethics and confidentiality requirements. Additional research, examining the gaps in policy and its implementation strategy, was analyzed for the scope of this study. All elements which are identified by the experts as 'very important' or "important" were discussed at the national workshop with the purpose of finalizing a national set of recommendations for the national action plans.

All the experts were supposed to respond to the close-ended questions, and the information received was compiled according to question number for each country in a SPSS data base. The statistical package for the Social Sciences (SPSS, version 17) was used for data analysis, which helped to generate descriptive statistics for all the items. As the significant outcome of

this process was documented, an extensive list of responses from the experts corresponding to each question was developed.

Following the completion of the study, the results of the study were presented at a national workshop on sustainable livelihood and natural resources management. The resulting dialogue has enriched the interpretation and the understanding of the outcomes of the Delphi process, and is therefore, reflected upon in the results and identified in the general recommendation for national action plans for each country. To receive reliable results, anonymity, iteration, controlled feedback and statistical aggregation of group responses are key factors (**Wolfslehner et al., 2003**). Two rounds are usually sufficient to achieve consensus (**Rowe et al., 1991**). The final national workshop on sustainable livelihood and natural resources management supported the C&I process for incorporating and integrating the dimensions of DRR, PRSP and SFM.

2.2.3 Desk study review

In this study, we reviewed and referred to a selected set of indicators based on the policy documents and internationally negotiated national initiatives based on existing action plans/strategies in the field of Natural Resources Management, Poverty Alleviation, Disaster Risk Reduction, Country Development, Biodiversity Conservation and Forestry management plan, Land Use Management and other related Action Plans in the three countries. At the end, the study identified the key elements of SLNRM by consulting and meeting governmental and non-governmental organizations at national levels and reflecting on the activities of pilot studies.

Basically, we referred the following documents:

1) National Disaster Risk Management Strategy (2010 – 2015), Republic of Tajikistan.
2) National development strategy of the republic of Tajikistan for the period to 2015.
3) Poverty reduction strategy of the republic of Tajikistan for 2010–2012.
4) National Programming Framework, Republic of Tajikistan, Central Asian Countries Initiative for Land Management.
5) Strategy and Action Plan for sustainable land management in the high Pamir and Pamir-Alai Mountains.
6) National strategy on integrated safety of population and territories of the Kyrgyz Republic in disasters and emergencies for 2011-2015.

7) Kyrgyzstan: Environment and Natural Resources for Sustainable Development. – B. 2006, 85 p. ISBN 9967-23-868-2.
8) National Forestry Program for the period from 2005-2015, Kyrgyz Republic.
9) National Action Plan for Development of Forestry of the Kyrgyz republic in the period from 2006 to 2010.
10) Concept of forestry sector development in the Kyrgyz Republic
11) Risk assessment for Central Asia and Caucasus Desk Study Review, Central Asia and Caucasus Disaster Management Initiatives (CAC DRMI).
12) Country Development Strategy (2009-2011); Kyrgyz Republic.
13) Afghanistan National Development Strategy, Islamic Republic of Afghanistan.
14) Islamic Republic of Afghanistan: Poverty Reduction Strategy Paper, May 2008 IMF Country Report No. 08/153.
15) Linking poverty reduction and Environmental management: Policy challenges and opportunities, 2002.
16) Poverty reduction strategies and the millennium development goal on environmental sustainability: Opportunities for alignment, 2003.
17) United Nations Development Assistance Framework: In Support to the Afghanistan National Development Strategy, 2010 – 2013.
18) Islamic Republic of Afghanistan: Afghanistan National Development Strategy 1387-1391 (2008-2013); A strategy for Security, Governance, Economic Development and Poverty Reduction.
19) Islamic Republic of Afghanistan: Afghanistan's Fourth National Report to the Convention on Biological Diversity, Submitted by the Ministry of Agriculture, Irrigation and Livestock (MAIL), 2009
20) Promotion of Sustainable Livelihood Programme, United Nations Development Programme Afghanistan Country Office, December, 2008.
21) Draft Country Programme Document for Afghanistan (2010-2013)
22) United Nations Development Assistance Framework: In support of the Afghanistan National Strategy, 2010-2013.
23) The Integration of Biodiversity into National Environmental Assessment Procedures National Case Studies Afghanistan, Produced for the Biodiversity Planning Support Programme by GEF, UNDP, UNEP, and the World Bank, 2001.

24) Biodiversity Profile of Afghanistan, An Output of the National Capacity Needs Assessment for Global Environment Management (NCSA) for Afghanistan; United nation Environment Programme Post-Conflict and Disaster Management Branch, 2008
25) Islamic Republic of Afghanistan: National Environmental Protection Agency Strategy for Afghanistan National Development Strategy (with focus on Prioritization), 2007
26) UNEP in Afghanistan: Laying the Foundations for Sustainable Development, United Nations Environment Programme, 2009.
27) National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action for Climate Change (NAPA) of Afghanistan: Final Joint Report. February 2009: United Nations Environment Programme.

2.2.4 Information sharing and feedback

In order to identify the key recommendations for sustainable livelihood and natural resources management, several face-to face meetings and three workshops for the key stakeholders in each country were organized to share information and knowledge, to develop study methodology and common approaches addressing all three dimensions: poverty reduction, disaster risk reduction and environmental sustainability. The research ideas and elements of the methodology were discussed at a preparatory meeting held in Dushanbe on Dec 2012 and in Bishkek on January 2012.

The details of the research design and a plan for the desk study review and Delphi survey were shared in expert meeting held in Vienna from 18 to 20 April, 2012. Additionally, the methodology of this study was shared at the PAMIR project expert meeting in April 18-20, 2012, Vienna, Austria and at the MRI Key Contact Workshop Meeting, 21 April 2012, Vienna, Austria. After the presentation, small groups including scientists provided constructive suggestions in order to improve the scientific validity and introduce more practical means such as:

- Balancing composition of respondents and number of experts;
- Likert scale (either 1 to 4 or 1 to 5 or 7);
- Communication skills and personal linkages and team work;
- Engagement of policy makers and dialogue between the stakeholders;
- Recommendation after identifying issues and problems of each element;

- Feedback mechanisms.

2.3 The challenge of synthesizing research

While study team members were developing and analyzing criteria and indicators and making recommendations for developing national action plans on the sustainable livelihood and natural resource management, poverty reduction, environmental sustainability and disaster risk reduction, they confronted the different stakeholders' values and the tradeoffs between different perspectives of stakeholders had to be taken into account. However, it was the best way to identify the problems and make good decisions for evaluating the purposed set of indicators varying according to different geographical scales, socio-economic, political and ecological contexts. It also helped the comparison with the purpose of finding the similarities and dissimilarities and their applicability and importance at different geographical levels which has not been dealt with in this report. We found that the major challenges were to define the terms of measures across the scale, interpretation and analysis for the different disciplines. First, it was challenging for the study team to develop a comprehensive set of indicators for all levels and for the evaluation of the national and the management level as a whole. As suggested by the experts, developing indicators was based on the best and most current knowledge and, at the same time, had to be simple with the minimum set of indicators developed to be integrated into the existing management system and at national levels.

The perceptions and judgments of the stakeholders were competing and contradictory in their respective fields, affiliations with organizations and expertise. The trade-off between importance of indicators at national, regional (Provincial and District) and local levels and others had to be negotiated between different interest groups, otherwise open contradictions may have emerged. In such circumstances, identifying the overall importance of an indicator considering groups of stakeholders among which many have different values and objectives for the sustainable livelihoods and natural resources management remains problematic. Therefore, there is still a need to negotiate or explore to reach common consensus involving a broad set of stakeholders. Furthermore, the ownership of the research finding and recommendations and identifying acceptable tradeoffs are crucial parts of the study. Key challenges in livelihoods and natural resources management include defining meaningful indicators and an appropriate timescale and managing large amounts of information and data. Some indicators related power to people, user rights, reducing vulnerability, increasing access

to natural resources and equity and benefit-sharing were more representative of the priorities of the poor. However, such indicators are also more difficult to measure and need a more comprehensive justification in the forms of cross-cutting issues in both livelihood and natural resources management framework. Therefore, the focus on poverty and livelihood and its best practices to sustainable livelihood is greatly appreciated in the analysis of the report.

The study was conducted using a structured questionnaire and discussed in workshop with some open-ended questionnaire in World Café procedure therefore it does not restrict the ideas and perspectives of any stakeholders on the framework of the applicability of the strategy and plans. The report has been documented without any triangulation of information between the views of stakeholders and with not enough reference and proper logical framework that can be achieved in the certain period of time. The respondents were flexible to provide their perceptions on each indicator but it was difficult to judge how they perceived and evaluated the indicators and inconsistency in the judgment was found. The objectives of this study were very pragmatic and vague and thus it is difficult to form recommendations for specific areas. The recommendations of NAPs are basically linked with the objectives of PAMIR project which has been focusing on DRR, poverty reduction, environmental sustainability, livelihood but it is again difficult to interlink cross-cutting issues and the relationship between their causes and effects with respect to the specific objectives.

CHAPTER 3

SUSTAINABLE LIVELIHOOD AND NATURAL RESOURCES MANAGEMENT

3.1 The concept of Sustainable Livelihood

The Sustainable Livelihoods (SL) framework has been widely discussed in terms of the analysis of links between livelihoods and natural resources in the recent years. This approach came to prominence at the Department for International Development (DFID) from 1998 which has obtained very diverse views from different development agencies and co-operations. The concept frequently varies from one organization to the other in terms of defining the primary framework and focus areas, strategies approaches, asset ownership, income levels, age, gender, caste, social and political status. The Cooperative for Assistance and Relief Everywhere (CARE) and United Nations Development Programme (UNDP) and other organizations had been provided with the sustainable livelihood approaches in the late 1990 which have developed into their own organizational perspectives and methodologies.[1]

At the stage of implementation, they cover their activities at different levels: district, community level and household with different fundamental dimensions (policy, governance, empowerment and actions) and differed in the understanding of power dynamics as well as failed to take into consideration the informal structure of social dominance and power within the communities in social transformation process. A socially differentiated analytical approach to livelihood strategies is thus necessary in order to understand the formal and informal institutions, their underlying social architects, behaviors, relationships, and the power dynamics of stakeholder groups. It also helps to design support activities that build on the strengths of the poor. It is therefore essential that Sustainable Livelihood (SL) analysis fully involve the local people and let their knowledge, perceptions, and interests be heard, a practice which is recognized by most analysts using this concept.[1] However, all agencies have recognized that the concept of Sustainable Livelihood has to address the various factors and processes which either constrain or enhance poor people's ability to make a living in an economically, ecologically, and socially sustainable manner. The SL concept offers a more

[1] This aspect is only incidentally touched upon in Scoones (1998), but is emphasized more by other IDS researchers, such as Chambers (1995) and Brock (1999).

coherent and integrated approach to provide livelihood opportunities for the next generations (Chamber and Conway, 1992). The 1992 United Nations Conference on Environment and Development (UNCED) expanded the concept, especially in the context of Agenda 21, and advocated for the achievement of sustainable livelihoods as a broad goal for poverty eradication. It stated that sustainable livelihoods could serve as 'an integrating factor that allows policies to address 'development, sustainable resource management, and poverty eradication simultaneously'. [2]

"Sustainable Livelihoods Approach" (SLA) has broadened the scope of analysis to all relevant aspects of rural livelihoods with the ultimate goals of poverty reduction and improvement of the environmental sustainability. It also focuses on the diverse strategies employed for the poor section of societies and identifies the factors and causes and effect of poverty and searches of institutional arrangements which influence and implements the formulated strategies. In order to develop the concept and analytical framework of livelihood approaches, a number of development agencies have proposed an analytical framework model e.g. DFID, CARE, and OECD.

> According to the working definition used by DFID, "a livelihood comprises the capabilities, assets . . . and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base."[3]

The Institute for Development Studies (IDS) team at the University of Sussex, Brighton, UK, and the British Department for International Development (DFID) team proposed a somewhat modified definition of SL:

> *A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets* both now and in the future, while not undermining the natural resource base' (Chambers, and Conway, 1992).

[2] UNDP. **Promoting Sustainable Livelihoods: A Briefing Note** Submitted to the Executive Committee, June 4, 1997

[3] DFID. 1999. Sustainable Livelihood Guidance Sheets. http://www.livelihoods@dfid.gov.uk

The report by Scoones elaborated especially on three of the elements of this framework: Livelihood Resources, Livelihood Strategies, and Institutional Processes and Organizational Studies. Four types of capital are identified in the IDS framework: natural, economic and financial, human, and social capital. As several authors have pointed out, this is particularly important in the case of the poor, who often rely on a number of different types of economic activities for their livelihoods, and where it is not any activity but their combined effect for the household economy that matters (Chambers, 1995; Hussein and Nelson, 1998). The concept of sustainable livelihood strategies offer a more appropriate basis to empower the 'poorest of the poor' to become active decision-makers in achieving certain outcomes in response to a particular 'vulnerability context' and in shaping their own livelihoods. The SL approach allows for more dynamic perspectives on livelihoods and is a useful approach to facilitate an understanding of the linkages between livelihood strategies and use of natural resources for reducing poverty and promoting environmental sustainability both at the local and at the policy levels.

> It has therefore become increasingly recognized that poverty is multi-dimensional, and according to the Development Assistance Committee of the Organization for Economic Co-operation and Development (OECD), *"The dimensions of poverty cover distinct aspects of human capabilities: economic (income, livelihoods, decent work), human (health, education), political (empowerment, rights, voice), socio-cultural (status, dignity) and protective (insecurity, risk, vulnerability)"* (OECD, 2001).

The principle of the SL approach has been acknowledged and addressed and has had policy implications. It has added value to the efforts to reduce poverty. It serves to anchor development thinking and practice into the day-to-day reality and aspirations of rural communities and the poorest section of the world.

SL principles (as of 1999) Poverty-focused development activity should be:

People-centered: sustainable poverty elimination will be achieved only if external support focuses on what matters to people, understands the differences between groups of people and works with them in a way that is congruent with their current livelihood strategies, social environment and ability to adapt.

Responsive and participatory: poor people themselves must be key actors in identifying and addressing livelihood priorities. Outsiders need processes that enable them to listen and respond to the poor.

Multi-level: poverty elimination is an enormous challenge that will be overcome only by working at several levels, ensuring that micro-level activity informs the development of policy and an effective enabling environment, and that macro-level structures and processes support people to build upon their own strengths.

Conducted in partnership: with both the public and the private sector.

Sustainable: there are four key dimensions to sustainability – economic, institutional, social and environmental sustainability. All are important – a balance must be found between them.

Dynamic: external support must recognize the dynamic nature of livelihood strategies, respond flexibly to changes in people's situation, and develop longer-term commitments.

SL approaches are underpinned by a **commitment to poverty eradication**. Although they can, in theory, be applied to work with any stakeholder group, an implicit principle for DFID is that activities should be designed to maximize livelihood benefits for the poor.

Taken from: Ashley and Carney 1999, p. 7

3.2 The concept of Sustainable Natural Resource Management

Sustainable Natural Resource Management refers to the management of natural resources such as forest, land, water and other kinds of human and non-human being, with a particular focus on how management affects the quality of life for both present and future generations. It deals with managing the variety of sustainable strategies and /or approaches including land use planning, forest management planning, watershed management, biodiversity conservation, use of technologies, use of tools and decision support system models, involvement of stakeholder in resources management and local innovations and initiatives. NRM is also congruent with the concept of sustainable development that recognizes the health and productivity of landscapes in dealing with reducing poverty and supporting livelihood opportunities for people on the basis of environmental governance and security. Land use management, forest management, environment management are similar to natural resources management in the way that all advocate an integrated and holistic approach to managing natural resources. Population increase, resource use conflicts, urbanization, technological advancements, climate change, political stagnations and unsustainable use and harvesting of resources have all put more pressure on natural resources leading to land degradation and poverty. Therefore, NRM issues are particularly important where the livelihood of the majority of population is fully dependent on natural resources.

3.3 Linking Sustainable livelihood and Natural Resources

Natural resources management and livelihood is central to the achievement of most of the Millennium Development Goals which provide food for the large part of the world population[4] and provide a wide range of other goods e.g. timber, fuel, fodder, medicine, clean water, building materials, input to industries and other ecosystem services. Natural resources and livelihood issues are increasingly interconnected with highly important political concerns and policy debates such as livelihood enhancement, poverty reduction, environmental governance, disaster risk management, sustainable resource management, climate change, and devolution for the resource management. Because of their widely cross-sectorial nature, these approaches emphasize the holistic conceptual frameworks, dealing with more complex strategies in formal and informal institutional and organizational settings. They also provide opportunities to enhance livelihood options arising out of the social analysis of institutional arrangement and encourage the active participation of different stakeholder groups in the planning processes, defining a set of objectives and analyzing linkages and trade-offs between different management options. To achieve the livelihood options, a wide range of intervention options through use of proper use of resources, forest-based enterprises and development and promote green job and economy in each country is required. It also requires significant engagement with other sectors such as forestry, agriculture, emergency, energy, water, environment, trade and climate change. In this context, research-based information and knowledge should be one of the central pillars for developing and linking the elements and options for sustainable livelihood and natural resources management.

The Evidence of linking Natural Resources and Livelihoods

Approximately two thirds of the world's poor live in rural areas and rely heavily on agriculture for their income.[5] This includes not only agriculture in rural areas; 1.6 billion people rely on forest resources for all or part of their livelihoods,[6] while around 150 million people count wildlife as a valuable livelihood asset[7] and 200 million derive part or all their livelihood from fishing.[8]

The poorest usually have the least secure and smallest entitlements to land, water and forest resources. For example, in Bolivia the richest 20 percent of the population owns 91 percent of the land while the

[4] Pimental, D, M McNair, L Buck, M Pimental and J Kamil (1997), "The value of forests to world food security", *Human Ecology* 25, pages 91–120.

[5] CIDA. 2000. *Towards a healthy, well-nourished world*, p. 4. Discussion paper.

[6] Mayers, J and S Vermeulen (2002), *How Good Forest Governance Can Reduce Poverty*, WSSD Opinion Paper, IIED, London.

[7] LWAG (2002), *Wildlife and Poverty Study*, Livestock and Wildlife Advisory Group, Department for International Development, London.

[8] IUCN (2003), "Sustainable livelihoods", Media Brief for the World Parks Congress, IUCN, Gland.

poorest 1 percent owns 0.1 percent of the land.[9] Worldwide, only 2 percent of all land is owned by women. [10] However, a vast majority of households, especially in developing countries, depend on land and other natural resources for satisfying and addressing their hand- to- mouth problems and expecting their long-term livelihood ambitions.

Poverty is the major cause to the fact that most farmers have no any other option than to cultivate poor and degraded lands with limited access to agricultural resources, and often they are urged to make use of less labour consuming cultures and agro□technical methodology which have a potential negative impact on the environment. [11] From the total area of agricultural lands, more than 88% are estimated as degraded and affected by desertification processes. [12]

Women in developing countries are already on the front line of adapting to climate change, with increasing floods and droughts affecting upon their livelihoods. As pivotal managers of natural and environmental resources and key frontline implementers of development, women have the experience and knowledge to build the resilience of their communities to the intensifying natural hazards to come"[13]

More than 20 types of natural disasters or processes occur in Kyrgyzstan: earthquakes, mudflows, landslides, flooding, snow avalanches, talus, fern-glacier avalanches, wind squalls, ice-covered ground, hail, ice, drought, storms, solifluction, pulsation and glacier movement, subsidence, karst and thermokarst, forest fires, locusts, natural focus of plague etc. [14]

In marginal rural areas, people's workloads are generally greater and rates of severe malnutrition and debilitating infectious diseases are higher than in urban areas [15] Similarly, marine resources play a significant role in contributing to food security and sustainable local livelihoods (1 billion Asians rely on fish for their primary source of protein, while the global fishing industry employs some 200 million people.[16]

Millions of rural South Africans depend upon biological resources for day-to-day survival. Access to this "natural capital" provides a crucial contribution to livelihoods, a buffer against poverty and an opportunity for self-employment" [17] For Africa, 57 % of the economically actively people are still employed in Agriculture (against more than 74% in 1965.

Natural disasters, poverty and environmental conditions are closely correlated in least developed countries (LDCs): declining agricultural productivity from climatic shocks increases poverty and the intensive use of marginal lands by poor people contributes to increased disaster risks [18]

Of the 1.2 billion people estimated to live on less than US$ 1 a day (i.e. those that are the target of MDG1), 70 per cent live in rural areas with a high dependence on natural resources for all or part of their livelihoods. [19] At world level the per capita available land has been reduced from 0.39 ha in 1961 to 0.27 ha in the 1990s. The land/man ratio for the African continent has decreased from 0.62 ha in 1965 to merely 0.26 ha in 1995. In countries like Rwanda and Malawi this figure has even dropped to almost 0.15 ha.[20]

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[9] Encuesta Condiciones de Vida. 1995. Elab. SISE.

[10] FAO. 1999. *Women's right to land and natural resources: Some implications for a human rights-based approach*. Rome.

[11] See In-depth review of disaster risk reduction in the Kyrgyz Republic-2010: http://www.unisdr.org/we/inform/publications/14436

[12] Country Gender Assessment of Kyrgyzstan, ADB, p. 29

[13] Mr. Salvano Briceno, Director, Secretariat of the UNISDR, "Gender Perspectives: Integrating Disaster Risk Reduction into Climate Change Adaptation, Good Practices and Lessons Learned", 2008

[14] Kyrgyzstan: Environment and Natural Resources for Sustainable Development. – B. 2006. – 85 p.

[15] FAO. 2000. *The State of Food and Agriculture 2000*, p. 221. Rome.

[16] IUCN (2003), op. cit**.**

[17] Wynberg, R (2002), "A decade of biodiversity conservation and use in South Africa: tracking progress from the Rio Earth Summit to the Johannesburg World Summit on Sustainable Development", *South African Journal of Science* No 98, May/June 2002.

[18] UNDP. 2001. Disaster Profiles of the Least Developed Countries: a report from the Third United Nations Conference on Least Developed Countries, p. 2. (Held in Brussels.)

19 LWAG (2002), op. cit.

[20] Varheye W., Brinkma R. and Sims D. (1997). *Elements of a Different Approach to Land Development Issues*. The Land, 1 (2): 143-152

Lands radically altered by the people occupy about 10% of the territory of Kyrgyzstan. The rest is occupied by natural ecosystems, in varying degrees, exposed to human activities. And with it 23% of the territory is located at an altitude over 3500 meters where there is no life. [21]

According to the household survey conducted by the NSC Kyrgyzstan in 2005 to define the new level of poverty: poor households mainly use wood for heating, most of which (53%) they had cut themselves, leading to a reduction in the number of trees growing nearby; almost a third (28%) of the population living in rural areas take drinking water from rivers, springs and ditches, posing a serious threat to human health; less than 25% of the population of the republic has access to a sewage system; less than 15% of poor households use a centralized method of waste collection. [22]

[21] See Environnemental Management Plan, Kyrgyzstan, Kyrgyz Republic Agricultural Productivity Assistance Project, 2011

[22] Kyrgyzstan: Environment and Natural Resources for Sustainable Development. – B. 2006. – 85 p.

CHAPTER 4

CASE STUDY II: KYRGYZSTAN

4.1 Background

The main idea of the proposed survey was to initiate the national process of recommending the elements for developing national action plans on Sustainable livelihood and natural resources management in Kyrgyzstan. The elements of action plans were developed based on several strategies and action plans which have been developed in relation to the issues of DRR, forestry, land use system, environment management and poverty reduction in order to achieve the Millennium Development Goals in Kyrgyzstan and seek to develop new approach to strategic planning and policy, taking into account the sustainable natural resources management and livelihood promotion on a par with socio-economic development of people. The action plan identifies the status, the problem and the potentials, and indicates the general future directions with specific recommendation for each elements/problems. Identifying the key stakeholders, formation of an expert and technical team for the study, communication and preparation of the working documents as well as the Delphi survey questionnaire were the major tasks of this study.

4.1.1 Kyrgyzstan: Country context and background information related national strategy and action plan for DRR, SLMM and PRSP

Kyrgyzstan: Country Context Kyrgyzstan is a small, landlocked, mountainous country dominated by the western reaches of the Tien Shan range in the northeast and the Pamir-Alay in the southwest and located in the very center of Central Asia and with a total area of 199,951 km²[23]. It is bound by Kazakhstan to the north, Uzbekistan to the west, Tajikistan to the south-west and China to the east with an ethnically mixed population of roughly 5 million people.[24] The complex mountainous terrain of Kyrgyzstan, located in the southern part of the temperate zone, creates favorable conditions for all types of natural ecosystems – from deserts to High Mountain tundra.[25] The highest mountain is the Victory Peak (Tomur Feng, 7 439 m

[23] "The World Fact book: Kyrgyzstan" United States Central Intelligence Agency. 2010

[24] "Women and Men of the Kyrgyz Republic", Publication of the National Statistics Committee of the Kyrgyz Republic, Bishkek, 2009, page 46.

[25] Kyrgyzstan: Environment and Natural Resources for Sustainable Development. – B. 2006. – 85 p.

above sea level) at the eastern tip of the country, at the border with China. The mountain stands in the Mustag massif, one of the world's largest glaciers, covering 1 579 km² and about 94% of the country is located at more than 1 000 m above sea level, and 40% above 3 000 m. [26] 5.5% land with soil cover, 11.9% sand, rock debris, other inconvenient, 3.6 % glaciers and snowfields, 3.7% lakes and rivers, 5.4 % roads, buildings, industrial land, settlements. [27] Forests cover about 5% of the landmass and when shrubs are included the figure is 7.9%.[28]

Source: Map of Kyrgyzstan (http://www.nationsonline.org/oneworld/map/kyrgyzstan-administrative-map.htm)

Kyrgyzstan depends much on agriculture, and effective management and conservation of natural resources for the sake of future generations is key for its sustainable development. Pasturelands occupy 44% of the territory, and thus far about 25% of the pastures are under the

[26] In-depth review of disaster risk reduction in the Kyrgyz Republic, 2010 http://www.unisdr.org/we/inform/publications/14436

[27] See Environmental Management Plan, Kyrgyzstan, Kyrgyz Republic Agricultural Productivity Assistance Project, 2011

[28] Kyrgyzstan: Environment and Natural Resources for Sustainable Development. – B. 2006. – 85 p. ISBN 9967-23-868-2

threat of degradation. [29] About 10% of the territory, situated at the lowest altitude, is classed as arid. [30]The climate of Kyrgyzstan varies widely in different parts of the country, from a low dry continental climate in the mountain slopes to a 'polar' climate in the highly elevated areas of the Tian Shan mountain range. [31] The average winter temperature ranges from -4°C to -9°C, whereas the summer temperature varies from 20°C up to 27°C. In winter, the coldest areas of the country experience below freezing temperatures for as long as 40 days, and even some desert areas experience constant snowfall for more than one month.[32]

Strategy and Action Plans: The policy, approaches, strategy and actions of the state in achieving natural resources and poverty reduction objectives are set out at country level, in country development strategies and programmes, and also in inter-agency strategies and action programmes. Current and future programmes at country and local levels depend on the priority and relevance of natural resources and livelihood management issues reflected in the development strategies and programmes. Moreover, the interests of funding agencies also reflect and support their aid on their priorities and focused areas. Current national framework strategies in Kyrgyzstan have been developed to various extents with the following of international initiatives and framework that Kyrgyzstan has joined and committed to implement the development process.

In 2001, Kyrgyzstan approved **the Comprehensive Development Framework till 2010 (CDF),** which set out to achieve the strategic goals of socio-economic development until 2010. The main objectives in the sphere of natural resources and environmental management were defined in the CDF as: improving the national environmental policy; reducing anthropogenic impact on the environment; rational and efficient use of water and energy resources and strengthening agricultural land reclamation measures; conservation and reproduction of biological diversity.

National Poverty Reduction Strategy (NPRS) was approved to implement the CDF for 2003-2005. The strength of the PRSR is in reliably assessing the current situation with regard to poverty, definite orientation towards a market economy taking into account the need to

[29] CPAP (Country Programme Action Plan) for 2005□2010, UNDP KR
[30] http://www.fao.org/nr/water/aquastat/countries/kyrgyzstan/index.stm
31 See In-depth review of disaster risk reduction in the Kyrgyz Republic-2010: http://www.unisdr.org/we/inform/publications/14436
[32] Risk Assessment for Central Asia and Caucasus, Desk Study Review, Central Asia and Caucasus Disaster Risk Management Initiative (CAC DRMI), 2009

protect the poor and promote the private sector, harmoniously developing rural regions and sectors of the economy, and last but not least, understanding the need to fight corruption. The weakness of the strategy is its sector based approach, including natural resources management aspects, lack of specific priorities, detailed proposals on implementation and target indicators and lack of approved funding.

The Country Development Strategy for 2009-2010 (CDS) has been developed with its goal to increase the living standards of the population through sustainable economic growth, job creation, generating high and stable incomes and making a wide range of social services available and maintaining high living standards. Some of these strategies and action plans are briefly discussed in following sections.

Country Development Strategy (2009-2011), the Kyrgyz Republic:[33]The document contains a strategic vision of the Kyrgyz Republic development for 2009-2011 with the purpose of providing a comprehensive solution to social and economic tasks and came out as the 2007-2010 Country Development Strategy Update (CDS-1). Country Development Strategy (CDS) is the most important concept paper that outlines midterm vision of the Kyrgyz Republic and determines major directions of development and country activities in 2007-2010. Overall goal of the CDS is to improve level and quality of people's lives by ensuring sustainable economic growth, creating opportunities for employment and gaining high and sustainable income, accessibility of wide spectrum of social services and compliances with the high living standards in health-friendly environment. The basic principle of Country Development Strategy for 2009-2011 (CDS-2) were to consolidate the society; maintaining the tendency towards positive changes in the country; mobilizing own resources; unifying all intellectual, power-holding and moral resources; and result-oriented advancement by achieving qualitative changes in the country development strategic priorities.

The CDS, as one of the major strategies related to the improvement of environmental quality by maintaining ecological safety, assumed development of the country allowing the provision of sustainable economic growth on a long-term basis, not leading to degradation changes of natural environment. The four major activities were planned to improve environmental policy

[33] Country Development Strategy (2009-2011), The Kyrgyz Republic, Bishkek, 2009, http://www.donors.kg/upload/docs/reports_and_studies/kyr.cds_synthesis_eng.pdf

and statutory and legal framework, develop and implement policy measures regarding the country's adaptation to changing climatic conditions; improvement of efficiency of policy measures on biodiversity preservation and development and implementation of policy measures on solid household waste management, including medical waste products. The CDS also assessed a development of mechanisms for coordination and harmonization of the regional development strategy with sectorial strategies, however, this process is complicated with the absence of a uniform regional policy of the state that would have approved common priorities and principles of regional development. According to the Country Development Strategy, main development directions are based on partnership between the government, society and business. The proposed CDS is an administrative tool focused on all aspects of mutual relations between strategy actors, as well as on the entire process of its implementation (resources, use of resources, outcomes, etc.). The Country Development Strategy is considered as a set of complex targeted programs, including regions, and local projects united by uniform conceptual approaches, common goals and resources, focused on achievement of a strategic goal for 2009-2011: improvement of the quality of living through improved quality of economic growth, management and environment.

Comprehensive Development Framework of the Kyrgyz Republic to 2010:[34]: The documents support the implementation the National Poverty Reduction Strategy (NPRS) and reflect on a ten-year national development vision. The overarching goal of the CDF is to achieve political and social wellbeing, economic prosperity together with freedom, human dignity and equal opportunities for all the people of Kyrgyzstan. The donor community has supported the CDF document, having confirmed this in numerous memoranda, statements and addresses. The mission of the National Poverty Reduction Strategy of the Kyrgyz Republic (NPRS) is to "expand the opportunities for citizens to have an adequate and equitable living standard". Two key strategies have been developed to achieve this mission: the stabilization strategy which will achieve political, social and economic stability through the provision of food, energy, financial, information and ecological security, and the safeguarding of cultural values and traditions. Key policies are outlined in the following areas: Effective administration of the state; Building a fair society; Economic policy; Economic growth and structural reforms; Governance reform; Regional development; and Security of development. The document

[34] Comprehensive Development Framework of the Kyrgyz Republic to 2010: Expanding the Country's Capacities: National Poverty Reduction Strategy (2003-2005)
http://siteresources.worldbank.org/INTPRS1/Resources/Country-Papers-and-JSAs/Kyrgyz_PRSP.pdf

presents main issues hindering gender equity and development policy and defines possible actions for achievement of gender equity and reducing poverty in all its manifestations. The report highlights the National Action Plan for Achievement of Gender Equity for 2002-2006 and promotes gender policy development process with several recommendations. The strategy should focus for full integration of gender consideration methodologies into national, sectorial, and regional programs, as well as in the budget process and functioning of state agencies. Implementation of specific actions to ensure gender balance at all levels of decision making in government instrumentalities. The document further focuses on for the expansion of scientific studies on gender development and consideration of the findings in the planning and elaboration of strategies and policies. Wider use of gender-specific statistics is to facilitate monitoring and evaluation of gender aspects. The report also describes the major principles underlying the strategy for stabilizing the use of nature in a comprehensive rationalization of the use of natural resources without any damage to sustainable long-term development. Methods of water use and land cultivation with a view to biodiversity preservation should be beneficial to all strata of society, in particular the poor. In this regard, as envisaged under CDF, the International Year of Mountains and the Year of Tourism, a set of measures have been implemented, aimed at stabilizing the environment.

In-depth review of disaster risk reduction in the Kyrgyz Republic-2010:[35] **T**his report summarizes the outcomes of the assessment and desk-review analysis undertaken for achievements in disaster risk reduction (DRR) and the implementation of Hyogo Framework for Action in Kyrgyzstan, which aims to be included in the preparation of the second Global Assessment Report on Disaster Risk Reduction for the period 2010-2011. The report first introduces the country context and background information, then analyses its hazards profile and vulnerability to disasters such as earthquakes, flooding, mudslides, avalanches, snowstorms, drought, heat waves, windstorms, and mountain lake spills - including climate change-related impacts and man-made disaster risks, as well as the institutional and legislative frameworks implemented. It presents the country's consistent work in disaster prevention, the governmental programmes, policy, activities in urban and hospital safety, disaster insurance penetration, giving some examples of successful experiences of DRR actors in Kyrgyzstan. Lastly, it highlights its implication in regional and international cooperation. The conclusion

[35] See In-depth review of disaster risk reduction in the Kyrgyz Republic-2010: **http://www.unisdr.org/we/inform/publications/14436**

gives some recommendations for the government to consider a number of issues related to DRR, including the mode of composition and functioning of the National Platform for Disaster Risk Reduction. The Republic of Kyrgyzstan demonstrates overall commitment to the implementation of the Hyogo Framework for Action and considers disaster risk reduction as a national priority. The country has supported and signed many regional and international treaties and agreements, including the ***Hyogo Framework for Action in 2005,*** and had established the structures and systems to address disaster mitigation and response. Moreover, there is a clear commitment of the government to the establishment of the ***National Platform for DRR***, which was expressed both by the Ministry of Emergencies and by the Government of the Kyrgyz Republic.

National Forest Programme for the period from 2005 to 2015:[36] The concept for Development of the Forestry Sector, which determines the main principles and goals of the forest policy, as well as the strategic lines for the period until 2005, is a basis for the institutional and structural reform, legal reform, system for information and education. The goal of the programme is connected to the components of the National Forest Policy: ensuring of the sustainable development of forests thought involvement of the population and local communities in the joint management of forests and determination of the state role in the forestry sector in the new environment. In the concept for Development of the Forestry Sector, three main goals of the Forest Policy of the Kyrgyz Republic and ten strategy lines are well presented with a number of activities and measures within the framework for each strategic line. The results expected from implementation of the programme are to mitigate the level of poverty among the population; ensure conservation of biodiversity and increase the forest cover, promote sustainable management of forests, harmonize the legal framework with respect to the environmental activities and enhance the role of local communities. The report concluded focusing on the necessity to reform the institutional and legal aspects for efficient distribution of powers and responsibilities among the stakeholders involved in the implementation of the programme. It also highlighted the importance of participation and interaction of all stakeholders and their shared responsibilities of the posed goals and tasks on which the success of the programme depends.

[36] See National Forest Programme for the period from 2005-2015 (in both English and Kyrgyz version)

Strategy and Action Plan for Sustainable Land Management in the High Pamir and Pamir-Alai Mountains-2011:[37] The Strategy and Action plan was developed on the basis of multi-level, multi-stakeholder negotiations among representatives of governmental, non-governmental, and international organizations, the scientific community, and local self-government bodies as a trans-boundary initiative setting priorities for the development of the Pamir and Pamir-Alai region. It is undertaken as a part of a GEF/UNEP/UNU project on "Sustainable Land Management in the High Pamir and Pamir-Alai Mountains – Integrated and Trans-boundary Initiative in Central Asia" in order to improve the legal framework and to strengthen the region's economic, informational, and educational potentials and addresses problems related to land use systems and the degradation of land resources, with the aim of decreasing the vulnerability of fragile mountain ecosystems and, consequently, reducing poverty among the local populations. It also proposes concrete steps for the further development of international cooperation between the two Central Asian countries of Kyrgyzstan and Tajikistan. The Strategy has great practical significance, as it determines the direction of sustainable development of the High Pamir and Pamir-Alai mountains in the medium to long term for addressing socioeconomic concerns, including the livelihoods of mountain people.

The Strategy and Action Plan defines specific areas that require trans-boundary collaboration to improve natural resources management in the area. These include: monitoring and study of biodiversity in the region and especially migration processes across borders, and protection of the region's biodiversity against the main threats of poaching, illegal hunting, and tourism; regulation of pasture use; improvement of the legal framework and legal acts on trans-boundary relations (border checkpoints, customs, and veterinary services), development of trans-boundary economic relations; and (5) development of different types of tourism across the region. Further steps on those trans-boundary issues would depend on the extent to which the solution of the concrete problems addressed will benefit Kyrgyzstan and Tajikistan respectively. Four "action plans" were elaborated for the following priority directions: (1) Biodiversity and Forest Management, (2) Increasing the Efficiency of Farming, (3) Use of Mountain Pastures and Increasing the Productivity of Livestock Farming, and (4) Reducing Risks of, and Vulnerability to, Natural Hazards. These action plans are based mainly on working group discussions conducted during the various multi-level stakeholder forums, and

[37] See GEF/UNEP/UNU Project "Sustainable Land Management in the High Pamir and Pamir-Alai Mountains – Integrated and Trans-boundary Initiative in Central Asia"

thus provide a comprehensive list of actions needed across the different administrative levels. The action plans anticipate participation of governmental and non-governmental structures, local communities, and international donor organizations in addressing poverty, land degradation, loss of biological diversity, renewable energy production, and sustainable management of other natural resources. The study illustrates and identified the three implementation phases, which were ranging from short-term (up to 2 years), to mid-term (up to 5 years) to long-term (up to 10 years).

4.2 A set of Indicators and brief descriptions

The indicators were numbered and the experts were asked to evaluate each indicator individually and they were free to comment on, add or delete indicators in a structured questionnaire survey process. As the applicability of an indicator could vary between different scales, the assessment was carried out in reference to various geopolitical and geographical specifications. To avoid response bias associated with the interview, the indicators of same components were not in order and they were later divided into six criteria based on their nature and contributions. They may be listed in one criterion, but they often contribute to more than one criterion or element. Further analyses of the strategies are presented after the findings of Delphi survey which shows the various proposed identified indicators being evaluated by the different experts at different geographical scales: National, Regional (Oblast Province and District) and local. In total, 52 indicators were developed for the final set for the survey (see details in Annex 1). All elements which were identified by the experts as 'very important' or "important" were discussed at the national workshop with the purpose of finalizing the national set.

Table 3: Lists of Possible standard set for Sustainable Livelihood and Natural Resource Management, PAMIR Project/ Afghanistan

I.1 Regional co-operation	*The regional cooperation should facilitate harmonization of standards and regulation to enhance cross border initiatives*
I.2 Reduce Environment risk	*The strategy should prioritize measures in order to reduce environmental risks*
I.3. Community-level activities and Hazard, Vulnerability and Socio-Risk Assessment	*Community-level activities and Hazard, Vulnerability and Socio-Risk assessment should be determined and recognized as essential component of the disaster risk reduction*
I.4 Assessment of risk zones and monitoring	*Information about potential hazards, vulnerability and risk for all inhabited areas should be provided and the capacity for monitoring at all national and district levels should be strengthened*
I.5 Improve environment security	*Improved environment security should ensure sustainable development with minimum negative impacts to environment*
I.6 Use of the Sustainable Livelihood framework (SLA)	*SLA should be chosen as a conceptual and methodological framework for linkages between the context, vulnerability, poverty and access to forest/ resources*

I.7 Ecosystems approach into environmental management	*Introducing the ecosystems approach into environmental management should be taken as a key condition for achieving sustainability of the environment and management of natural resources*
I.8 Plantation and design and layout of plantations	*Concern authorities promote plantation in order to maintain the ecosystem function and the forest area and design and layout of plantations*
I.9 Social security	*Concerned authorities should promote social security specially for identified deprived, asset less and marginalized community*
I.10 Integration of DRM and national land use and land planning policy	*Disaster risk management issues should be integrated into the process of development of the national policy and decision-making related to land use and land planning*
I.11 Disaster Preparedness and Response	*National Disaster Preparedness and Response Framework Plan should be introduced and prepared at the national, regional and district levels*
I.12 Public awareness programmefor disaster reduction	*Concerned authorities should establish nationwide infrastructure to increase awareness of disaster risk reduction methods*
I.13 Monitoring and Biodiversity	*There should be conducted long-term monitoring of status of biodiversity and studies on restoration and ecosystems*
I.14 Private sector involvement	*Concern authorities should involve the private sector in the sustainable management of natural resources*
I.15 Ecosystem functions and services	*Ensuring the integrity of ecosystems and their components is a primary task for sustainable livelihood and natural resource management*
I.16 Conflicting laws	*Concern authorities evaluate and develop mechanisms to address conflicting laws*
I.17 Income generation activities	*Particular attention should be paid to catalyzing alternative livelihoods and small businesses, and facilitating local natural resources management planning*
I.18 Environmental governance	*Concerned authorities should be strengthening environmental governance*
I.19 Scientific research team	*Concern authorities promot scientific research team for conducting disaster risk management, linkage poverty and environment*
I.20. Customary tenure or use rights	*Government protects the customary tenure or use rights of the natural resources*
I.21 Early warning systems	*Concerned authorities should be developing prompt warning of the relevant disaster response services and public about potential disasters*
I.22 Institutional and environmental sustainability	*There should be strengthened institutional potential with a view to promote environmental sustainability*
I.23. Reform of the social welfare system	*There are plans to enact and implement reform of the social welfare system to take the conditions of the market economy into account*
I.24 Indigenous people	*Concerned authorities identify indigenous people with customary/traditional rights to forest resources*
I.25 Illegal and unauthorized activities	*Forest management protects from illegal harvesting, encroachment, illegal settlement and other unauthorized activities*
I.26 Planning and implementation	*Forest management consults local communities for planning and implementation of forest management*
I.27 Access to natural resources	*Forest management clearly defines access to natural resources*
I.28 Equal rights and opportunities	*Government/local authorities should eliminate gender inequality and provide equal rights and opportunities*
I.29 Local processing and new markets	*Concerned authorities encourage the optimal use and local processing of forest diversity of products and new markets*
I.30 Land management	*Concerned authorities are required to improve and coordinate legislation on environmental protection in order to establish the institutional conditions to successfully combat desertification*
I.31 Genetic diversity, native species diversity and endangered species	*Concern authorities maintains genetic diversity, native species diversity and conserve rare, threatened and endangered species*
I.32 Climate change and payment system for ecosystem services	*Concerned authorities should be developing the norms necessary for adaptation to climate change and introduce payment system for ecosystem services, not only for natural resources use.*
I.33 Comprehensive assessment of the impact of economic activity on the environment	*Implementing and applying a short-term comprehensive assessment of the impact of economic activity on the environment should be recognized as being necessary for promoting sustainable natural resources management.*
I.34 Integration into Land Use Planning and Management	*The capacity of national and local institutions should be formulated and integrated into land use planning and management*

I.35 Institutions and Policies for Pastureland Management	*Management should create institutional and policy pre-conditions for investments in pasture rehabilitation*
I.36 Implementation of Sustainable land management (SLM) projects	*National institutions should improve their capacity to integrate SLM considerations into their operations and budgets and to design and implement SLM projects*
I.37 Encroachment and grazing	*Concern authorities control encroachment and impacts of grazing*
I.38 Stakeholder participation and participatory decision making	*Concerned authorities should widenparticipation in decision making and contribution to SLM by civil society and other stakeholders*
I.39 Conservation and management of biodiversity	*Government/local authorities should be promote conservation and proper management of biodiversity effectively*
I.40 Power and voice	*Area of forests should be managed by user groups with representatives of the poor*
I.41 Sustainable utilization of NTFPs	*Concern authorities should develop management guidelines for NTFPs*
I.42 Awareness of environmental management	*Forest authorities should develop awareness strategy for conservation, secure and sustainable environment*
I.43 Wildlife farming and hunting	*Concern authorities promote measures for wildlife farming and hunting*
I.44. Foster equitable land distribution	*Policies should foster equitable land distribution and agriculture intensification. to reduce pressure to settle marginalized lands*
I.45 Professional and technical personnel	*SFM allows access to an adequate number of professional and technical personnel*
I.46 Knowledge management and transfer	*Research institutions develop mechanisms and necessary knowledge management and transfer*
I.47 Implementation of Joint forest management and leasing relations	*Concern authorities ensure the implementation of joint forest management and leasing relations*
I.48 Reforestation concept/Strategy	*Concerned authorities should develop nationwide reforestation concepts*
I.49 Pasture management and productivity of livestock	*SLM ensures sustainable pasture management and enhancement of productivity of livestock farming*
I.50 Tran boundary co-operation	*SLM supports trans-boundary co-operation and programmes for biodiversity conservation, poaching control and environmental education*
I.51 Transparency in decision-making, annual programme and budget	*Concern authorities ensures transparency in decision making processes*
I.52 Effective inter-sector and inter-agency coordination	*Mechanisms for effective inter-sector and inter-agency coordination shall be put into a more efficient system of institutional management of natural resources and the environment.*

4.3 Delphi experts participating in the survey

The Delphi survey was conducted between June to August 2012 in Kyrgyzstan and preliminary findings of the study were presented in the national workshop entitled '***Enhancing coordination mechanism among key stakeholders on Disaster Risk Reduction'*** which was held in Osh, Kyrgyzstan (13-14, September, 2012). The total 33 participants comprised of the Environment and Forestry Protection Agency, National Platform Secretariat of DRR, MSDSP, Osh, Crisis Situation Management Center MES KG, Civil Protection department, Osh Technical University, Head of several AO, Kyrgyz Head University of Engineering Research and PAMIR project staffs (see details Annex 2) were participated in the workshop.

In total, 28 respondents took part in the Delphi study, representing more than 42% female participation, comprising of government representatives (21%), international and non-governmental organizations (54%), universities (14%), and associations (11%). Out of the 28 respondents, experts from the natural resource management sector were in the majority (32%). Of the rest, 25% were from the Environment, 11% from social sciences and about 4% from economics and politics and 25% categorized as being from other occupations (see table 4).

Table 4: Descriptive statistics of Delphi experts participating in the survey of C&I development for National Action Plans (Source: Delphi Survey, 2012)

Gender	**Received Responses**
Female	12 (42.9%)
Male	16 (57.1%)
Affiliation	**Received Responses**
Government	6 (21.4%)
I/NGOs	15 (53.6%)
University	4 (14.3%)
Association	3 (10.7%)
Expertise	**Received Responses**
NRM	9 (32.1%)
Environment	7 (25%)
Social sciences	3 (10.7%)
Economics	1 (3.6%)
Politics	1 (3.6%)
Others	7 (25%)
Total	**28(100%)**

4.4 Result and analysis based on the preference elicitation

For a quantitative analysis of the expert evaluations of the indicators regarding the applicability and importance for different geo-political and geographical regions with respect to SLNRM was assessed on the basis of the Likert scale rating (where 1 = least applicable/ importance and 5 = very high applicable/ importance). The 52 identified key indicators in target countries are categorized under six criteria: (1) Disaster Preparedness and Management, (2) Forest Management, (3) Land Use, Biodiversity and Pasture Land Management, (4) Environment Management, (5) Livelihood Promotion and (6) Cooperation, coordination and other Cross-Cutting issues (see variation of order of the indicators are numbered). Based on the experts' preference elicitation, the average rating of 4 and above

was considered a bench mark for high applicability and importance and below 4 had low applicability and importance for the further analysis. For each indicator of key criteria, it was possible to calculate the cumulative average sum to allow an interpretation of the overall applicability and importance of an indicator. We organized the results of the Delphi survey in terms of the information and feedback gained from experts, the extent to which consensus among survey participants emerged, and the priority or importance assigned to each of the items/issues.

4.4.1 Preference elicitation on Criteria Set 1 (Disaster Risk Management)

Under Criteria Set 1 (Disaster Risk Management), the elements related to the integration of DRM and national land use and land use policy (I.10), disaster preparedness and response (I.11), and early warning systems (I.21) were given a high priority in all geographical representations (National, Oblasts, Rayon and Local) (**Fig 4.1**). The community-level activities and Hazard Vulnerability and Socio-Risk Assessment (I.3) and Assessment of risk zones and monitoring (I.4) were elicited as highly applicable indicators in Rayon and Local level. The promotion of scientific research team (I.19) for conducting study on disaster risk management, linkage between poverty and environment were present only in the national indicator.

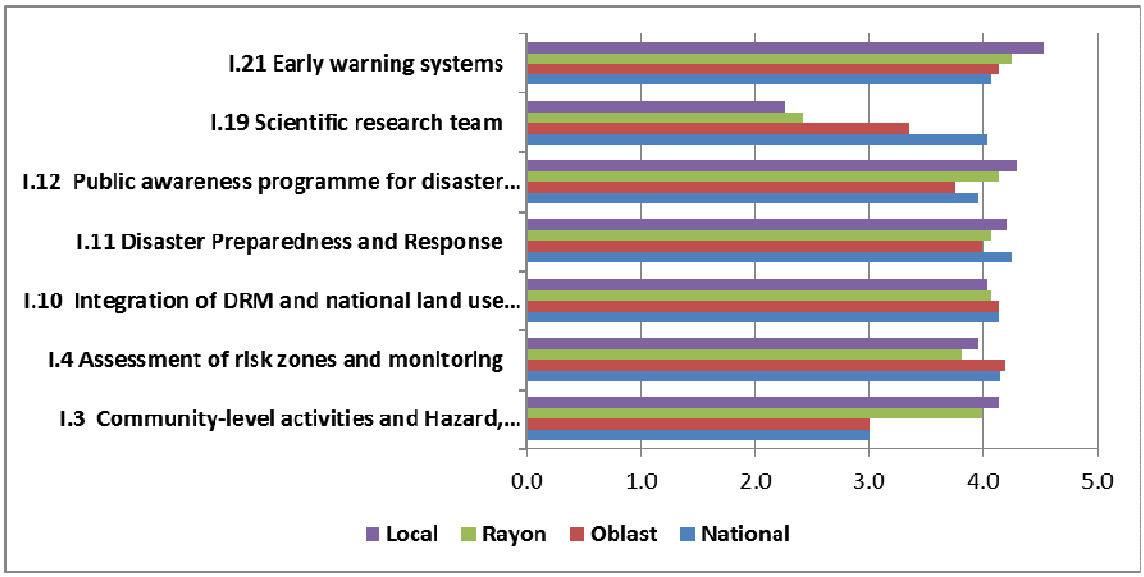

Figure 4. 1: Applicability at National, Oblast, Rayon and Local level by Stakeholder Preference elicitation for the indicators on Criteria Set 1 (Disaster Risk Management)

Out of 7 indicators under Criteria Set 1 (Disaster Risk Management), the indicators (I.3, I.4, I.10, I.11, I.12 and I.21), except promotion of research team (I.19), were given high

importance in overall judgment of experts. Under this category, the indicator related to the need for the early warning system assessment, upgrading and enhancing its capacity (I.21) were judged as highly important in the judgment of stakeholders (**Fig 4.2**).

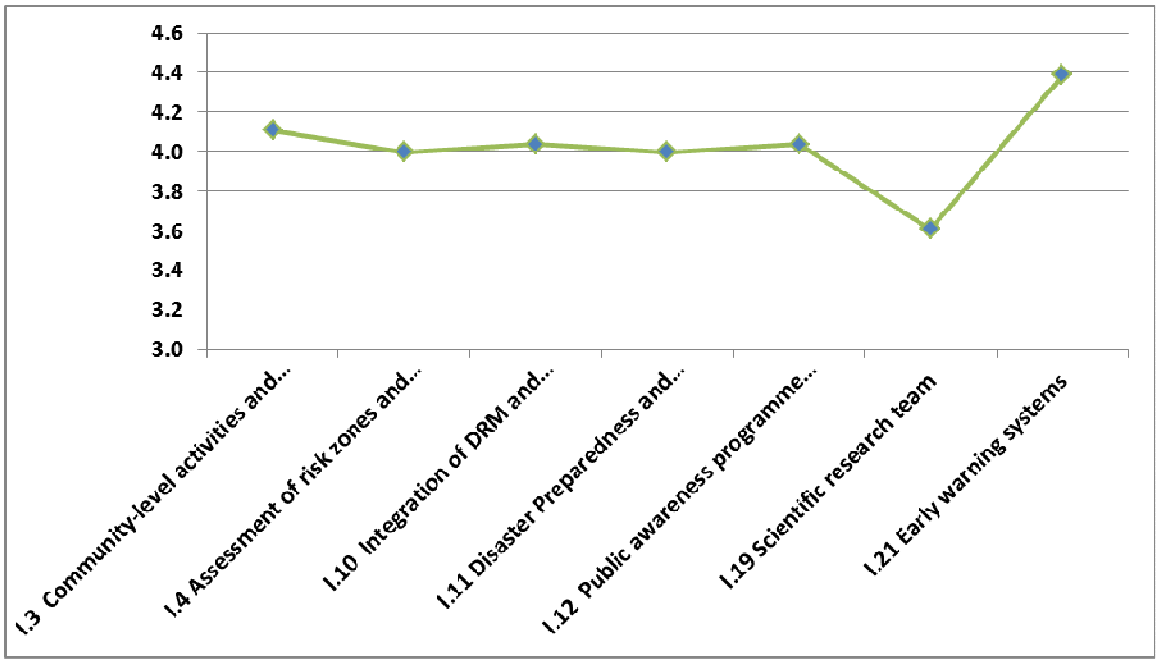

Figure 4. 2: Overall importance by Stakeholder preference for the indicators on Criteria Set 1 (Disaster Risk Management), Kyrgyzstan

4.4.2 Preference elicitation on Criteria Set 2 (Forest management)

Under Criteria Set 2 (Forest management), the protection from illegal harvesting, encroachment, illegal settlement and other unauthorized activities (I.25) and development of nationwide reforestation/strategy (I.48) were given high applicability as well as high importance at national, Oblast, Rayon and local levels. Based on the stakeholders' preferences, the protection of the customary tenure or use rights of the natural resources (I.20), consultation with local communities regarding planning and implementation of forest management (I.26) and development management guidelines for NTFPs (I.41) were rated with low applicability and low importance at all levels. In overall importance, the protection from illegal harvesting, encroachment, illegal settlement and other unauthorized activities (I.25) and ensuring the implementation of joint forest management and leasing relations (I.47) and development of nationwide reforestation/strategy (I.48) were rated with highest importance out of 12 indicators in this category. The applicability of each indicator varied at different geographical levels and its degree of importance is shown in the overall judgment.

Table 5: Stakeholder preference for the indicators of criteria 2 (Forest management and Biodiversity Conservation)

Indicators	National	Oblast	Rayon	Local	Importance
I.8 Plantation and design and layout of plantations	3.9	3.9	4.0	4.0	**4.1**
I.15 Ecosystem functions and services	**4.0**	3.8	3.9	**4.0**	**4.0**
I.20 Customary tenure or use rights	**3.1**	**3.1**	**3.2**	**3.8**	**3.3**
I.24 Indigenous people	3.7	3.5	3.8	**4.2**	3.8
I.25 Illegal and unauthorized activities	**4.4**	**4.4**	**4.5**	**4.5**	**4.5**
I.26 Planning and implementation	3.3	3.2	3.3	3.9	3.6
I.27 Access to natural resources	**4.1**	3.6	3.6	**4.0**	**4.2**
I.29 Local processing and new markets	3.4	3.4	3.5	4.0	3.7
I.37 Encroachment and grazing	3.8	3.4	3.7	4.2	3.8
I.41 Sustainable utilization of NTFPs	**3.4**	**3.3**	**3.5**	**3.9**	**3.5**
I.47 Implementation of Joint forest management and leasing relations	**4.2**	3.7	4.0	**4.0**	**4.3**
I.48 Reforestation concept/Strategy	**4.5**	**4.1**	**4.1**	**4.2**	**4.3**

4.4.3 Preference elicitation on Criteria Set 3 (Land Use, Biodiversity and Pasture Land Management)

Under the Criteria Set 3 (Land Use and Pasture Land Management)**,** the need of long-term monitoring of the biodiversity status (I.13), designation and implementation of sustainable land management (SLM) projects (I.36), conservation and management of biodiversity (I.39), promotion of wildlife farming and hunting (I.43) and ensuring sustainable pasture management and enhancing productivity of livestock farming (I.49) were judged as highly applicable at national level. All indicators, except for the maintenance of genetic diversity, native species diversity and endangered species (I.31), were rated with low importance at Oblast and Rayon levels. The results indicate that all indicators, except the need of long-term monitoring of status of biodiversity (I.13) and introduce monitoring system to assess the desertification process and land management (I.30), were presented as highly applicable at local level based on the stakeholders' preferences (**Fig 4.3**).

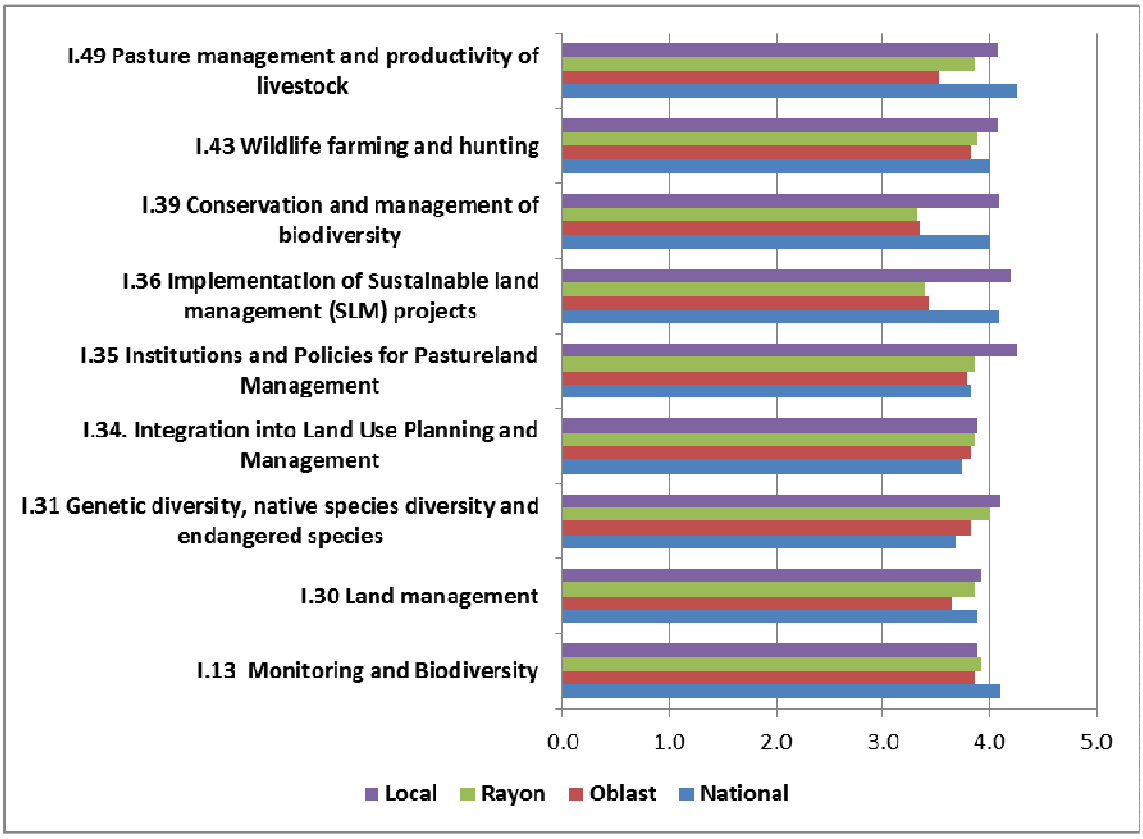

Figure 4.3: Applicability at National, Oblast, Rayon and Local level by Stakeholder Preference elicitation for the indicators on Criteria Set 3 (Land Use, Biodiversity and Pasture Land Management)

The results indicate that the long-term status of biodiversity and studies on restoration and ecosystem (I.13) as well as improvement of land management in order to establish the institutional conditions to successfully combat desertification (I.30) were rated with low importance whereas all other 6 indicators were judged as highly important under the Criteria Set 3 (Land Use, Biodiversity and Pasture Land Management). In general, the most promising indicator under this category, maintenance of pasture rotation, grazing control and management of livestock farming resources (I.49) seems to have the highest importance out of the nine indicators (Fig **4.4**).

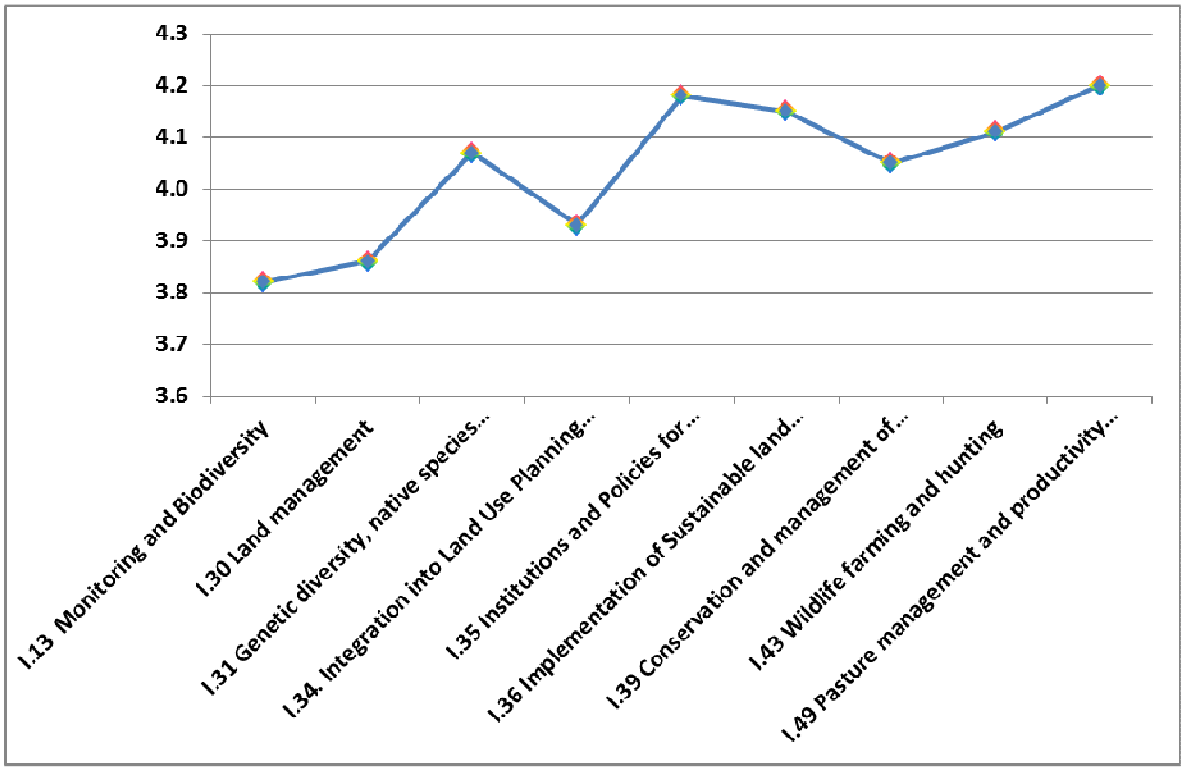

Figure 4.4: Overall importance by Stakeholder preference for the indicators on Criteria Set 3 (Land Use, Biodiversity and Pasture Land Management), Kyrgyzstan

4.4.4 Preference elicitation on Criteria Set 4 (Environment and Ecosystem Management)

Having a closer look at the overall applicability of all indicators under this category, it becomes evident that the improvement of environment security (I.5), introducing the ecosystem approach into environmental management (I.7) and the development of norms for adaptation to climate change and introducing payment system for ecosystem services (I.32) were judged with low applicability according to stakeholders' preferences elicitation. The indicators with low applicability were: promoting institutional and environmental sustainability (I.22) at Oblast, Rayon and local levels, however they were highly applicable at national level. The importance of awareness strategy for conservation, secure and sustainable environment (I.42) was judged as highly applicable at Rayon and local levels. The results indicate that the strategy to reduce environment risks (I.2) and strengthening the environmental governance (I.18) were rated as highly applicable on all levels (**Fig 4.5**).

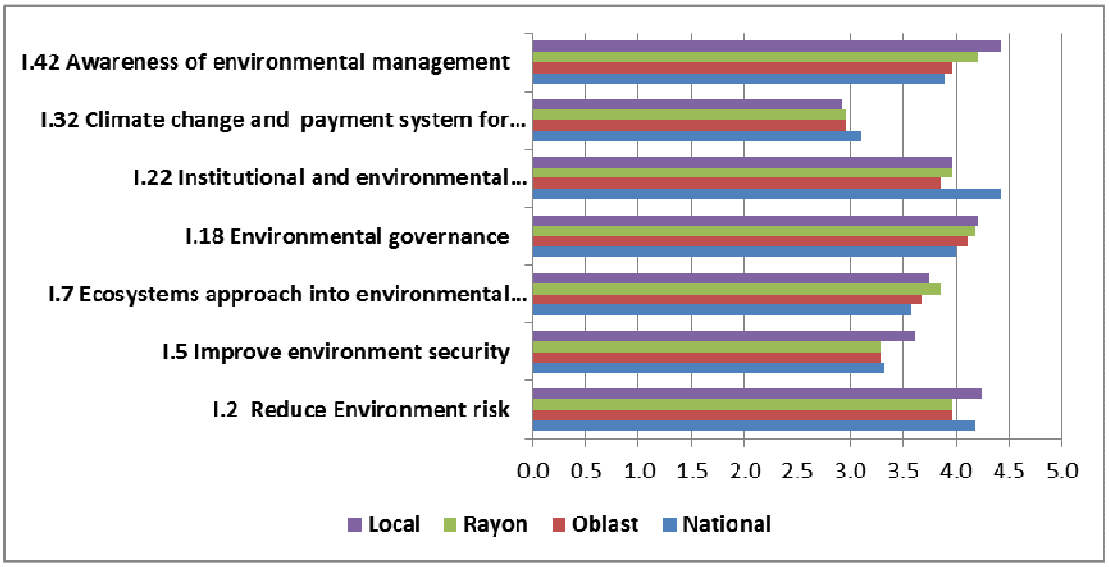

Figure 4.5: Applicability at National, Oblast, Rayon and Local level by Stakeholder Preference elicitation for the indicators on Criteria Set 4 (Environment and Ecosystem Management), Kyrgyzstan

For Figure 4.6, only two indicators showed low importance under the Criteria 4 (Environment and Ecosystem Management). The results indicate that the indicators 'Reduce environment risk (I.2)' and 'Institutional and environmental sustainability (I.22)' are the most important and surprisingly, the 'Improve environment security' (I.5), 'Ecosystem approach into environmental management' (I.7) and 'Climate change and payment of system for ecosystem services' (I.32) indicators were judged with low importance (**Fig 4.6**).

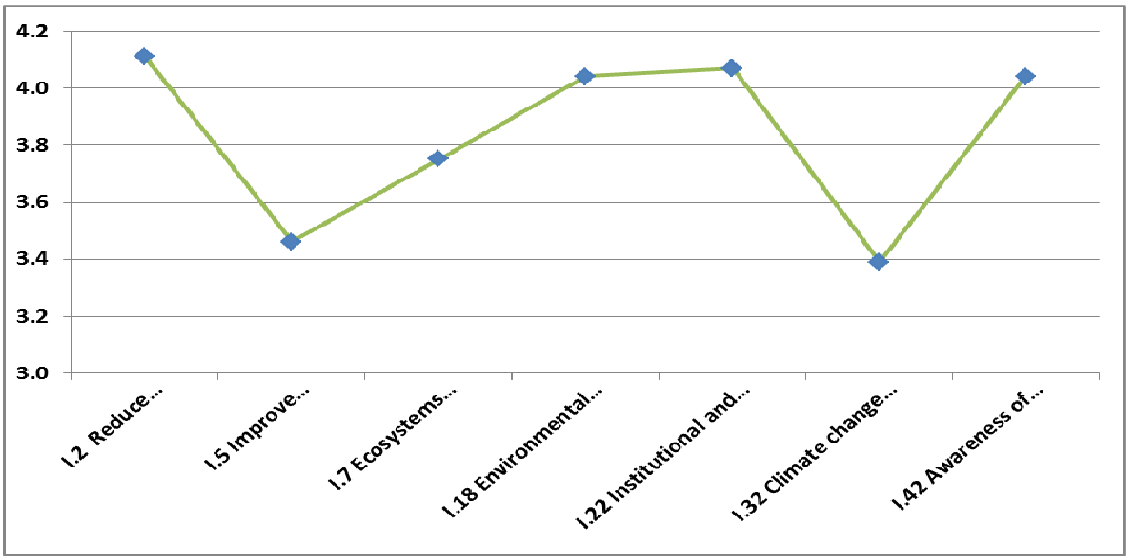

Figure 4.6: Overall importance by Stakeholder preference for the indicators on Criteria Set 4 (Environment and Ecosystem Management), Kyrgyzstan

4.4.5 Preference elicitation on Criteria Set 5 (Livelihood Promotion)

The ratings obtained from the experts were used for assessing the applicability and importance of indicators with respect to sustainable livelihood and natural resources management at the national, Oblast, Rayon and Local levels for Criteria Set 5 (Livelihood Promotion). The promotion of social security (I.9) by integrating social, gender and governance policies; implementation of the social welfare system (I.23); elimination of gender inequality and providing equal rights and opportunities (I.28) and fostering equitable distribution and agriculture intensification (I.44) were rated as highly applicable whereas the indicators (I.23, I.28, I.33) were given low applicability at Oblast, Rayon and local levels. Most of the indicators in this category were rated as less applicable at Oblast and (I.9, I.17 and I.44) as highly applicable at Rayon level. At local level, use of the Sustainable Livelihood Framework (SLA), promotion of social security (I.9), income generation activities (I.17) and fostering equitable distribution (I.44) were presented as highly applicable indicators (**Fig 4.7**).

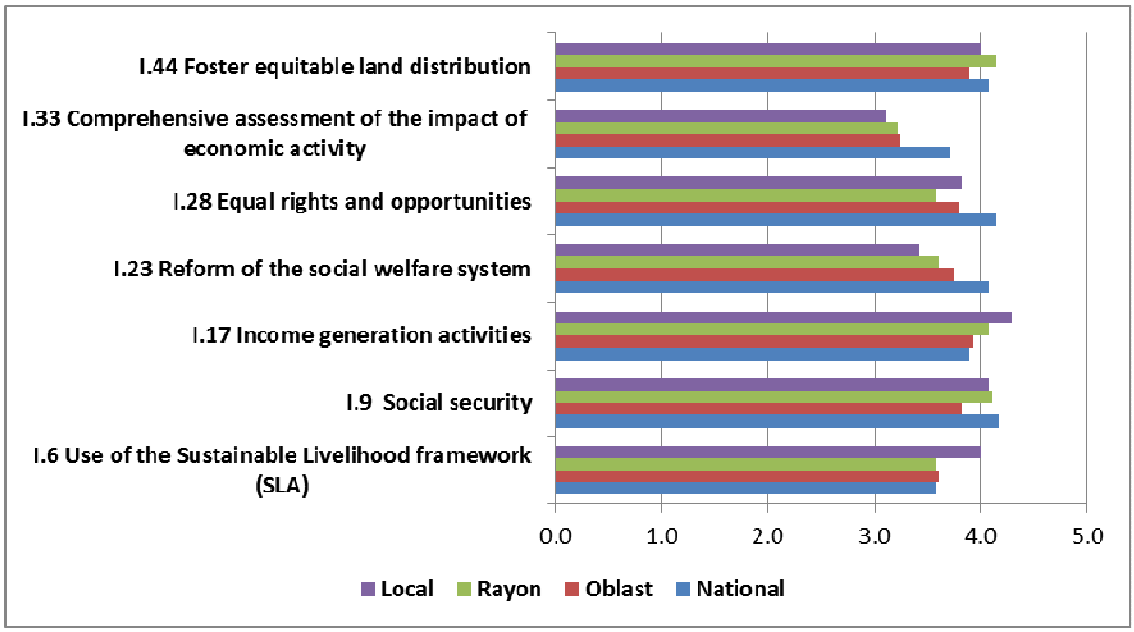

Figure 4.7: Applicability at National, Oblast, Rayon and Local level by Stakeholder Preference elicitation for the indicators on Criteria Set 5 (Livelihood Promotion), Kyrgyzstan

Based on the overall judgment of stakeholders' preferences, the promotion of social security (I.9), implementation of the social welfare system (I.23), elimination of gender inequality and providing equal rights and opportunities (I.28) and fostering equitable distribution and agriculture intensification (I.44) were judged as highly important and the rest as having low importance (**Fig 4.8**).

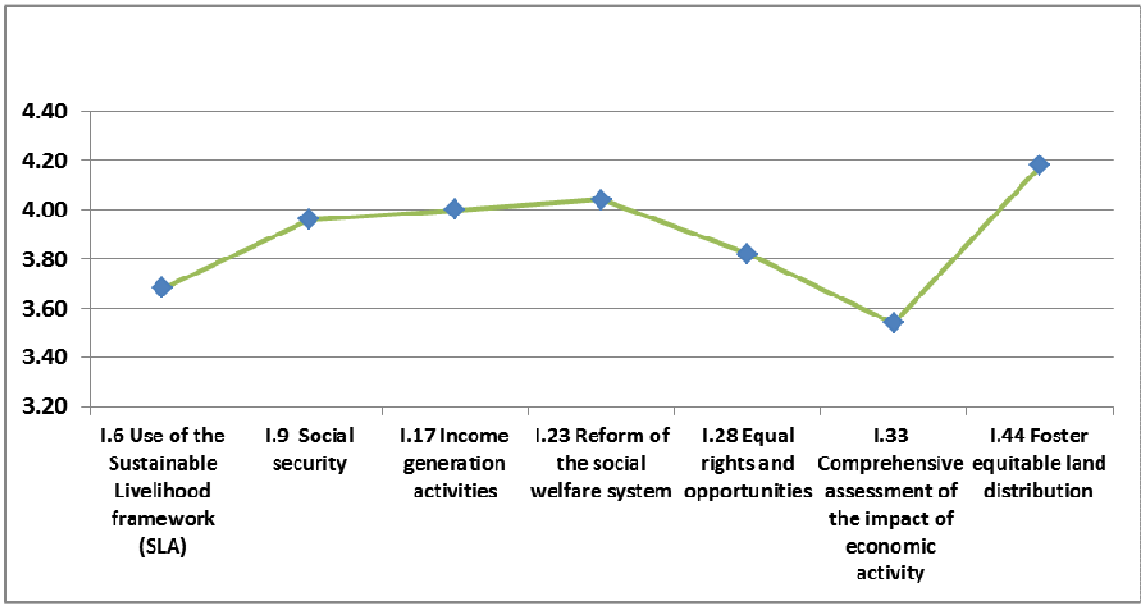

Figure 4.8: Overall importance by Stakeholder preference for the indicators on Criteria Set 5 (Livelihood Promotion), Kyrgyzstan

4.4.6 Preference elicitation on Criteria Set 6 (Co-ordination, Co-operation and other cross-cutting issues)

The results indicate that five indicators showed high applicability at the national level, only 3 indicators at the Oblasts level, 2 indicators at Rayon level and five indicators at local level out of eight indicators under category 6 (Coordination, Cooperation and other cross-cutting issues). Having a closer look at all levels, the results indicate that the involvement of private sector in the sustainable management of natural resources (I.14), transparency in decision-making, annual programme and budget (I.51) and effectiveness of inter-sector and inter-agency coordination (1.52) were considered being highly applicable indicators. The importance of regional cooperation (I.1) was most applicable only at the national level and the mechanism for effective inter-sector and inter-agency coordination (I.52) were judged with highest applicability at Oblast, Rayon and local levels (**Fig. 4.9**).

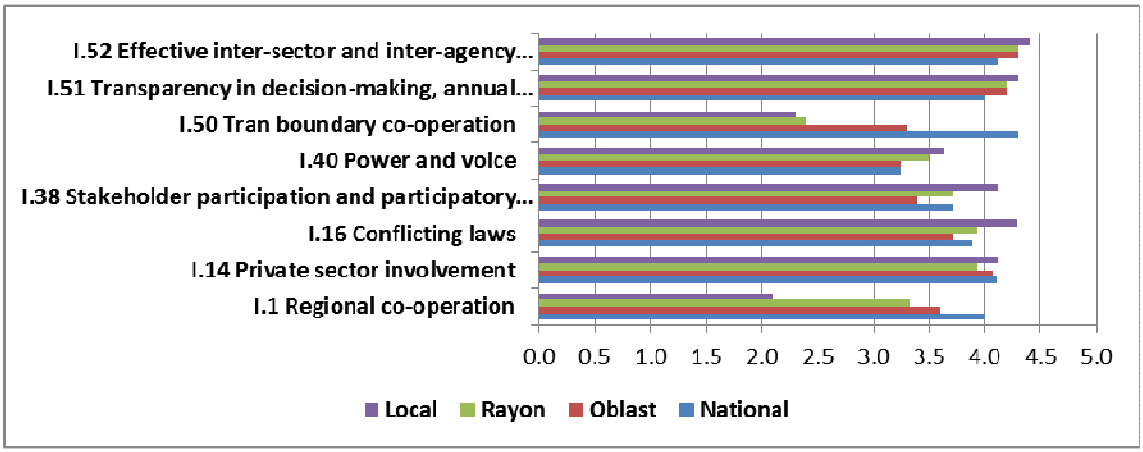

Figure 4.9: Applicability at National, Oblast, Rayon and Local level by Stakeholder Preference elicitation for the indicators on Criteria Set 6 (Co-ordination, Co-operation and other cross-cutting issues), Kyrgyzstan

The results indicate that only one indicator showed low importance under the Criteria Set 6 (Co-ordination, Co-operation and other cross-cutting issues). Interestingly, the 'power and voice' (I.40) was judged as with low importance whereas all other seven indicators were highly important (**Fig 4.10**).

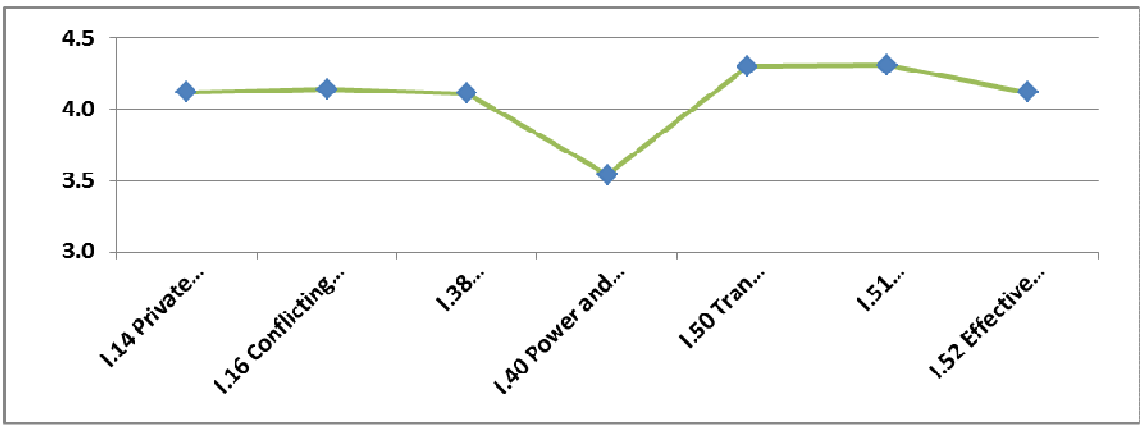

Figure 10: Overall importance by Stakeholder preference for the indicators on Criteria Set 6 (Co-ordination, Co-operation and other cross-cutting issues), Kyrgyzstan

4.5 Assessment of Problems, Activities and Recommendation for National Action Plans

Based on the above findings, all highly important and highly applicable indicators at national levels were discussed at national workshops and they have been assessed according to the identified problems/issued, activities and recommendations for each indicator on the criteria level.

4.5.1 Assessment of Problems, Activities and Recommendation on Criteria Set 1 (Disaster Risk Management), Kyrgyzstan

Problems/Issues	Activities	Recommendations
I.4 Assessment of risk zones and monitoring		
Improve and access data and joint research efforts (droughts, wind erosion, seismic risk zone, risks from landslides, mudslides and avalanches). Improve meteorological networks and ground reality. Inadequate information and data collection capacity in accordance with international standards.	Support technical advances, improve modeling and forecasting applications. Improve monitoring systems for evaluation of risk. Strengthen of capacity for monitoring at all national and district level stakeholders. Support technical advances in identification and evaluation of risk and improve monitoring systems for evaluation of risk.	Strengthen the capacity for monitoring at all national and district levels. Develop strategies and priority measures in order to reduce environmental risks. Revise development approval processes and guidelines required for hazard and risk assessments and the development of initiatives, particularly in hazard prone areas. Review the scope and depth of different geographic information systems (GISs) and databases available in the country that could support disaster risk management.
I.10 Integration of DRM and national land use and land planning policy		
Lack of efficient monitoring of services provision on the basis of qualitative, valid information, as well as fragmentation of responsibilities on the national and local level. Insufficient institutional capacity to use DRM integration principles in development and implementation of the national land use and land planning policy.	Prepare guidelines on DRM integration into land use plans. Integrate disaster risk management issues into the process of development of the national policy and decision-making related to land use and land planning. Produce maps in order to stimulate adequate land use and planning. Provide staff training .	Regular review and refinement of DRR & DM national action plans linked to national development plan and budget processes, meeting the government's commitment to the international and regional initiative. Revise infrastructure development planning and approval guidelines in all sectors to reflect on requirements for hazard and risk assessments. Ensure that DRR is a national and a local priority with a strong institutional basis for implementation.
I.11 Disaster Preparedness and Response		
Lack of a uniform plan for disaster handling. Lack of preparedness and response plans for recovery. Lack of capacity to provide timely response and coordination of disaster management capacity.	Training for specific disaster preparedness and plans. Inter-sectorial working group and volunteer team formation.	Develop National Disaster Preparedness and Response Framework. Focus on emergency response and restructurisation rather than prevention and adaptation.

I.19 Scientific research team		
Insufficient collaboration and networking within scientific research team from diverse disciplines: DRR, forestry, emergency, social/economic science. Lack of common understanding among scientists, policy makers and scientists to integrate poverty reduction, DRR and environment protection.	Functional and Research council with diversified scientific research team. Capacity assessment and sources of funding. Develop common understanding and improve integration between poverty reduction, DRR and environment protection.	Establish research council with representatives of diverse disciplines of science. Develop scientific research project linking disaster risk management, poverty and environmental management programme. Build bridges to increase communication between scientists, decision-makers, NGOs and local communities. Innovating with scientists for improved resilience at all levels and seeking to innovate to find solutions to complex problems. Strengthening collaborative action.
I.21 Early warning systems		
Irregularity in assessment of early warning system and upgrading and enhancing early warning capacity and improvement of the existing early warning systems.	Establishment of early warning systems. Prompt warning system for the relevant disaster response services and the public concerning potential disasters. Training/Capacity building and developing training and communication materials to improve community awareness of disaster events, community preparedness, and practical household response strategies for each type of disaster event.	Support technical advances, improve modeling and forecasting application. Identify, assess and monitor disaster risks and enhance early warning. Improve modeling and forecasting applications. Support technical advances, improve modeling and forecasting applications. Review monitoring capabilities for each hazard category, including the distribution of appropriate monitoring stations and filling gaps in technical expertise in data analysis and forecasting.

4.5.2 Assessment of Problems, Activities and Recommendation on Criteria Set 2 (Forest management), Kyrgyzstan

Problems/Issues	Activities	Recommendations
I.8 Plantation and design and layout of plantations		
Lack of reforestation project and intervention, low level of budget allocation. Not specifying the possible plantation areas and restoration of ecological balance.	Details of layout of plantation blocks. Plantation operational plan, use of suitable tree species. Establishment of wildlife corridors and streamside zones.	Promote plantation in order to maintain the ecosystem function and the forest area and design and layout of plantations. Restoration and prevention of degradation of the ecosystem. Encourage the establishment of nursery, campaign of afforestation strategy including, e.g. school nursery, community nursery, demonstration plot.
I.15 Ecosystem functions and services		
Lack of a nation-wide SLMM plan, knowledge in SPNA program and irregular ecological assessment and capacity building program.	Ensuring the sustainable management of land resources. Preserving biodiversity within Specially Protected Nature Areas (SPNA). Extend SPNA and introducing integrated water resources management and cutting emissions of greenhouse gases, determining ecological capacity of areas.	Ensuring the integrity of ecosystems and their components is a primary task of sustainable livelihood and natural resource management. Apply ecosystem based adaptation strategy for natural resources conservation. Promote trans- boundary cooperation for the: Conservation of vulnerable ecosystems, Sustainable use of natural resources, ecosystem goods and services. Enhancement of the adaptive capacity and livelihood opportunities for people living in mountain regions through ecosystem services.
25. Illegal and unauthorized activities		
Improper mechanism for controlling illegal harvesting, encroachment, illegal settlement and other unauthorised activities.	Authority instances and mechanisms, reward or punishment system.	Protect from illegal harvesting, encroachment, illegal settlement and other unauthorized activities.
I.26 Planning and implementation		
Lack of genuine participation, decentralization and devolution for forest management and planning. Low level of participatory forest management experiences and experimental studies.	Guideline for participatory forest management. Develop communication strategies and feedback mechanisms. Guideline for co-management arrangements.	Provide legal rights to local communities for planning and implementation of forest management. Follow both hybrid approaches: top down and bottom up. Apply adaptive forest management planning process for ecosystem management. Develop certain policy documents and adopt a holistic

		approach to planning by covering multi-sector and multi-stakeholder approach.
I.27 Access to natural resources		
Lack of Legal framework to protect and access forests and forest resources (e.g. land use right certificate, customary rights, or lease agreements).	Ownership of land use right certificate. Registration status. Agreement with authorities.	Clearly define access to natural resources. Awareness raising for forest development and extension of forest areas. Promote sustainable and efficient use of land, water and forest resources.
I.47 Implementation of Joint forest management and leasing relations		
Lack of a pilot study on joint forest management initiatives and learnt lessons from around the country. Issue of people participation in forest management. Lack of knowledge about JFM and SFM and limited forest areas. Land tenure and use rights of natural resources. Lack of common framework on Joint Forest Management. Mainstreaming the local participation in planning and management of forests.	Pilot and experimental plot for Joint Forest Management. Formation of commissions or task teams for formulating rules, regulations and guidelines. Development of Joint Forest Management Operational Guidelines. National platform for mainstreaming JFM and other similar initiatives.	Develop the general regulations on the joint forest management, procedure. Promote community participation as important means of protecting and implementing forest management. Ensure the implementation of joint forest management and leasing relations. Transfer the roles and responsibilities of forest management to the rural communities, entrepreneurs and private sector through joint forest management and other institutional arrangements. Develop the elements, criteria and indicators for SFM as well as for Pamir ecosystem management.
I.48 Reforestation concept/Strategy		
Legal provisions and strategy for reforestation. Insufficient budget and lack of skilled manpower. Lack of funding in forest development. Lack of skill manpower and concern expert/specialist.	Campaign for Reforestation/Afforestation. Establishment of demonstration plot and nursery establishment at community, local and regional levels. Maintain community documents about practices and best of practice of reforestation strategy.	Develop nationwide reforestation concepts and strategies. Allocate sufficient budget and technical assistance based on scientific knowledge.

4.5.3 Assessment of Problems, Activities and Recommendation on Criteria Set 3 (Land Use, Biodiversity and Pasture Land Management), Kyrgyzstan

Problems/Issues	Activities	Recommendations
I.13 Monitoring and Biodiversity		
Insufficient, scientific research on the status of severely threatened and endemic species. Lack of priority to engage the scientists and academician for biodiversity management research on a long-term basis.	Specific action for conservation of wild flora and fauna on the scientific basis. Develop biodiversity conservation strategy.	Conduct long-term monitoring of status of biodiversity and studies on restoration and ecosystems. Provision of monitoring for the condition of the environment and rational nature management. Promotion of people-led biodiversity conservation involving rural livelihood households and their CBOs and institutionalize an equitable benefit-sharing mechanisms.
I.31 Genetic diversity, native species diversity and endangered species		
Lack of prevention for maintaining genetic diversity, native species diversity. Ineeffective measures to conserve rare, threatened and endangered species and their habitats (e.g., nesting and feeding areas). Improper mechanisms for controlling illegal and inappropriate hunting, trapping and harvesting.	Use of natural regeneration and of scientific-based seed transfer. Conduct biodiversity survey and develop biodiversity measures.	Maintain genetic diversity, native species diversity and conserve rare, threatened and endangered species.
I.35 Institutions and Policies for Pastureland Management		
Not enough mobile SLM training centers. Lack of assessment of the carrying capacity of the lands.	SLM training/ community center.	Creating institutional and policy pre-conditions for investments in pasture rehabilitation. Institutionalization of incentive-based grazing and seasonal practice for grazing in vulnerable areas.
I.36 Implementation of Sustainable land management (SLM) projects		
Need to recognize as a budget category in relevant ministries and in PIP. Tremendous efforts to develop the SLM policies and guidelines. Lack of common understanding on SLM framework.	Review of PRSP and the role of SLM. Completion and endorsement of policies. Sensitization of SLM policies and its activities.	Improve their capacity to integrate SLM considerations into their operations and budgets and to design and implement SLM projects. Recognize and formulate policy frameworks for sustainable management of pasturelands, rainfed lands and forests in the PRSP.

Poor soil and water management in plots used for irrigated and rain-fed crop production.		
I.39 Conservation and management of biodiversity		
Need of public-private partnerships in use and management of natural resources. Weak law enforcement and provisions, lack of identification of proper habitats and their management. Overgrazing, poaching, and illegal trade in floral and faunal species. Lack of adequate and affordable alternative energy supplies.	Campaign of Awareness raising program. Develop policy on Public-private partnership.	Promote conservation and proper management of biodiversity. Development of public-private partnership mechanisms with a view to promote environmental sustainability. Implement measures to preserve especially protected natural areas and restore forest resources and pastureland.
I.43 Wildlife farming and hunting		
No clear policy on wildlife farming and hunting. Lack of functional guidelines on hunting and licences. Low level of awareness and low capacity for wildlife farming and development. Poorly regulated hunting, combined with grazing competition and habitat destruction impacting negatively on wildlife numbers.	Develop policy guidelines for wildlife farming. Develop wildlife management plan and hunting procedure and plan.	Develop legislative text for wildlife farming and hunting and the harvesting of wild products. Support and assist local people and their organizations in creation and maintenance of wildlife biological corridors to minimize human-wildlife conflicts. Promotion of wildlife farming with appropriate incentives.
I.49 Pasture management and productivity of livestock		
Over reliance on wood fuel, shrubs, dung and peat to meet household energy needs. Lack of scientific knowledge on pasture management. Improper policy and lack of budget allocation from the government. Quality of livestock and service centers. Poor pasture management, in particular the overgrazing of pasture areas close to the village.	Prepare Pasture land management guidelines and strategy plans. Prepare improved livestock farming guidelines. Engagement association groups for pasture management and market linkages for productivity.	Enhancement of farmer's knowledge and skills, creation of marketing and associations for mutual support and management of livestock. Maintenance of pasture rotation, grazing control, weed control, removal of barriers to use summer pastures, farming resources. Promote local institutionalization for range land management and livestock development program.

4.5.4 Assessment of Problems, Activities and Recommendation on Criteria Set 4 (Environment and Ecosystem Management), Kyrgyzstan

Problems/Issues	Activities	Recommendations
I.2 Reduce Environment risk		
Lack of proper training for all groups of the population in how to respond to emergencies in case of natural disasters. Asses and reduce chronic environmental risk to human health. Specific action for conservation of wild flora and fauna on the scientific basis.	Identify the driving factors to reduce environment risk. Conduct training of local communities in order to response to emergencies. Protection and conservation of wild flora and fauna on the management basis.	Develop strategies and priority measures in order to reduce environmental risks.
I.18 Environmental governance		
Lack of a legal policy framework for SL management and enforcement and overall regulatory framework for enabling the environment for biodiversity conservation. No analysis of the impact of the privatization process on the environment. No state system to monitor and measure environmental status of natural ecosystems and resources.	Develop legal and policy framework for forest governance. Develop the corresponding mechanisms for inter-sectorial coordination of policies, plans and actions aimed at environmental protection and sustainable use of natural resources. Upgrade the environmental monitoring system. Promotion of participatory land use plans.	Increase human capacity, capacity of the legislative of central and local institutions and organizations in the process of natural recourses and environment management. Create a favorable legal and investment environment and involve private sector in the conservation and sound use of natural resources.
I.22 Institutional and environmental sustainability		
Lack of effective mechanism for coordinating interaction between state bodies, natural assets and sector of civil society. Domination of decisions in the administrative regulatory systems, as opposed to preventive measures. Insufficient activities of local self-government bodies in implementing the undertaken nature conservation.	Priority of program and government funds and foreign aid. Environmental monitoring system. Policies, plan and action plans.	Strengthen institutional potential with a view on promoting environmental sustainability

I.42 Awareness of environmental management		
Need of study on linking EM and livelihood and a need for a common understanding and allocation of sufficient budget for public awareness. Inadequate funding for environmental protection measures is aggravated by poor environmental awareness among those using natural resources.	Develop EM management guidelines and its campaigns. Conduct trainings and workshops related to community based natural resources management.	Develop awareness strategy for conservation and securing sustainable environment.

4.5.5 Assessment of Problems, Activities and Recommendation on Criteria Set 5 (Livelihood Promotion), Kyrgyzstan

Problems/Issues	Activities	Recommendations
I.6 Use of the Sustainable Livelihood framework (SLA)		
Lack of experience and updated information related to SLA to examine the poverty and the forestry-poverty linkage in a broad sense.	Collect and compare the information gathered from different sources. Evaluate the level of knowledge of actors, evaluate the national poverty reduction policy from the point of view and voices of rural people.	Chose SLA as a conceptual and methodological framework for linkages between the context, vulnerability, poverty and access to forest/ resources.
I.9 Social security		
Limited progress on improvement of the development of the environment through better social and political stability, institutional strengthening of state agencies. Lack of policy process for integration and reflection of social, gender and governance policies (local, national, regional and networks). Lack of trained specialists, insufficient coverage of social services types, lack of interest in their provision by local self-governance bodies.	Equal distribution of income from natural resources use and access to them. Develop and implement PRSP, gender and social inclusion policy.	Promote social security, especially for identified deprived, asset less and marginalized communities. Ensure proper reflection of marginalization and deprivation issues in Natural Resource Management Groups' legislation and operation plan (e.g. Forest operation plan). Mechanism for implementation of the innovation system and development of a state policy throughout country: organization, legal, economic and other forms of innovation encouragement, support and regulation, increase of the off-budget resources share as innovation project.
I.17 Income generation activities		

Lack of access to, or potential for long term livelihood security. Duplication of activities by service providing and development agencies.	Establish demonstration plots and model sustainable livelihood options (beekeeping, medicinal plant production.	Catalyzing alternative livelihoods and small business, and facilitating local natural resources management planning. Integrating and strengthening holistic views for planning and management. Extension services and other interventions on women's participation and income earning opportunities should be taken into account.
I.23 Reform of the social welfare system		
Lack of an established, clear definitions of the authorities of agencies responsible for the development, implementation and regulation of social welfare policies particularly in regard to vulnerable segments of the population and plans.	Data of employment, migration and social security services. Social Welfare Fund and banks. Restoration and reinforcement of social service institutions.	Plans to enact and implement reforms of the social welfare system taking into account the conditions of the market economy. Increased representation of women and men at the decision-making level in government agencies.
I.28 Equal rights and opportunities		
Lack of access especially of women and poor people to secondary and higher education, as well as lack of equal access to lending and information, gender stereotypes in the public consciousness. Gender issues have not been adequately addressed in the principal government strategies and institutional gender policy mechanisms are limited. An ineffective statistical base and data collection system are limiting opportunities to advance the cause of gender equality.	Gender sensitive strategy plan. Partnerships and coordination in the implementation of gender policy. Creation of effective mechanisms for the implementation of gender policies as part of public administration reform. Ensuring equal access for men and women to resources in the entrepreneurial sphere. Eliminating gender inequality in the development of human potential.	Develop strategy to eliminate gender inequality and provide equal rights and opportunities. Social partnership mechanisms should be properly developed to allow for cooperation between the state, civil society and businesses in the implementation of gender policy. Enhancement of institutional mechanisms and the regulatory legal framework for gender policy, and consideration of gender issues in the drafting of budgets. Improvement of the statistical base for gender analysis and assessment. Eliminating gender stereotypes in the public consciousness.
I.44 Foster equitable land distribution		
Lack of special plan, agricultural research, extension and education towards improving farming systems and land management practices in marginal or fragile lands. Conflict over land and other resources or between new settlers and indigenous	Conduct an awareness raising program. Conduct research, extension and education.	Fostering equitable land distribution and agriculture intensification to reduce pressure to settle marginalized lands. Ensuring equal access for men and women to resources in the entrepreneurial sphere. Raising the educational level and competitiveness of

inhabitants and between pastoralists and agriculturalists. Unequal access and control over resources (property, land, credits, and so forth).		women entrepreneurs.

4.5.6 Assessment of Problems, Activities and Recommendation on Criteria 6 (Co-ordination, Co-operation and other cross-cutting issues), Kyrgyzstan

Problems/Issues	Activities	Recommendations
I.1 Regional co-operation		
Lack of facilitation for harmonizing standards and regulation to enhance cross border initiatives. Lack of common understanding and information of cross-border initiatives. Limited cross-sectorial coordination, especially at national level.	Prepare regional cooperation strategy. Establish a regional coordination forum/meeting. Establish Central Asian regional platform of all countries and relevant donors.	Enhance regional cooperation and provide an opportunity to enhance the resource management, trans-boundary cooperation, and common resource utilization, social and cultural development. Review of legislation, identification of forms of regional cooperation and comparative study of other countries' experience.
I.14 Private sector involvement		
Lack of policy and lack of an enabling environment for partnerships between government and the private sector on a mutually beneficial basis. Trend to reduce investment for the environment protection and rational use of natural resources.	Introduce and disseminate best practices of sustainable natural resources use by the private sector. Active participation of civil society, local self-governance bodies and business circles in the preparation, discussion, approval and implementation of important decisions in the field of environmental protection and rational natural management.	Develop incentive policy for long-term investment into renewability and maintainability of natural resources. Encourage the private sector and business partners in the Central Asia to adopt policies to ensure only legal provisions and follow the rule of law in any kinds of supply chains: timber and non-timber productions.
I.16 Conflicting laws		
Overlapping contradictory provision and conflicts between national and local laws. Many laws (draft laws) contain sectorial or corporate interests, which contradict state policy. Different legal frameworks in different countries.	Active of regulatory bodies and other stakeholders. Establish conflict resolution mechanism. Establish networking to review the regional and national level conflicting laws and possible actions.	Evaluate and develop mechanisms to address conflicting laws.
I.38 Stakeholder participation and participatory decision making		

Lack of provisions of budgets for NGOs involvements as facilitators in program's activities. Less percentage of women represented in the decision-making and implementing program's activities.	Promote participatory forest management.	Widening participation in decision making and contribution to SLM by civil society and other stakeholders. Simplification of natural management permissive system. Enhancing environment regulation enforcement.
I.50 Tran boundary co-operation		
Lack of project activities and efforts to conserve particularly vulnerable ecosystems and species in trans boundary context. Limited political commitment, coordination, leadership or formalization of policy within prescribed way. Absence of proper vision on trans-boundary activities.	Initiatives for a trans-boundary platform and exchange knowledge. Conduct exchange program to share research knowledge. Conduct more trans-boundary research (SLM, water, DRR, NRM).	Supporting trans-boundary cooperation and programmes for biodiversity conservation, poaching control and environmental education. Increase funding priority, regional partnerships and coordinate financial tools. Promote networking and collaboration at regional level for example by facilitating collaboration to deal with trans-boundary and inter-cooperation issues. Use of existing resources for trans-boundary regions (water and energy).
I.51 Transparency in decision-making, annual programme and budget		
Lack of transparency or public audit system. Lack of proper mechanisms for ensuring participatory decision making at all levels of natural resources and environment management.	Targeted sensitization campaign. Information and communication strategy. Public auditing system.	Ensure transparency in decision making processes. Awareness of policy and strategy of all concerned stakeholders.
I.52 Effective inter-sector and inter-agency coordination		
Limited cross-sectorial coordination, especially at the national level. Lack of understanding of benefit of inter-sector and inter-agency cooperation. Lack of transparent execution of decisions with the maximum possible participation of (agency and sector); monitoring and evaluation based on participation; and efficient feedback.	Legislative amendment and country's commitments. Public awareness program (outreach and ecological education). Common monitoring systems and data base of monitoring outcomes.	Put in a more efficient system of institutional management of natural resources and the environment. Promote dialogue between different stakeholders representing communities, disaster experts, scientific specialists, urban planners and government departments. Organize the Coordinating Committee in Central Asia to study and disseminate successes in the area of NRM.

CHAPTER 5

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

In this study, we classified the 52 identified indicators into six categories: 1) Disaster Preparedness and Management, (2) Forest Management, (3) Land Use, Biodiversity and Pasture Land Management, (4) Environment Management, (5) Livelihood Promotion and (6) Co-operation, co-ordination and other Cross-Cutting issues. It is evident from the findings of the study that more than 35 indicators were judged as highly important and most of indicators were highly applicable under the criteria 5 (Livelihood Promotion) and Criteria 6 (Co-operation, co-ordination and other cross-cutting issues). In total, more than 29 indicators at national level, 12 indicators at Oblast level, 19 indicators at Rayon and 34 indicators at local level out of 52 indicators were considered more applicable in the stakeholders' judgment. The study found that the approaches were supportive towards enhancing a broader sense of thinking of regional co-operation, reforestation strategy, livelihood issues, good governance, power dynamics, gender, rights and equitable distributions. It can be concluded that SLNRM practitioners have their own perceptions, definitions and ways of working in areas including gaining a better understanding of attributes of livelihood and natural resources.

The study found in the national strategy plans can serve as a reference to government and other involved parties willing to evaluate and to improve their services for improving livelihood of disaster-affected people, identify the gender gaps, institutional re-arrangement at all levels and achieve common understanding of livelihood and sustainable resources management. Regional co-operation strategy and research agenda, which were undervalued in the existing plans, should also be addressed. Particularly, the equitable resources utilization, environmental protection, ecosystem services and management, land degradation and prevention as well as stakeholder participation are poorly recognized and inadequately dealt with in current national policies and legislative framework. Implementation and effectiveness of the national policies for the development of natural resources (agriculture, water and forest sectors) and for environmental management, are poorly defined and overlap in terms of institutional responsibilities and financial resources within individual agencies. The regional issues (trans-boundary) and other regional obligations to develop and ensure uniformity in approach between countries for the management of mountain ecosystems especially High

Pamir and Pamir-Alai, are poorly enforced. It is worth restating that SL and natural resources management are a way of thinking and approaching the development and not clear-cut recipes for how we should proceed in dealing with complex problems and poverty related issues. It emphasizes a dynamic learning process rather than a blue-print assessment. A multi-layer analysis and cross-cutting demands from different disciplines or areas of development are needed.

The study recognized that the concept of natural governance system, particularly the rights, roles and responsibilities of diverse actors, is problematic and requires appropriate and meaningful indicators and must be developed through rigorous discussion with stakeholders from the beginning of the planning process. Therefore, these findings and conclusions can be considered, based on the joint agreed vision, as an essence for re/formulating goals and action priorities of respective countries and stakeholders. It supports the discussions on existing policy processes as well as on new policy instruments for application in Central Asia. It is concluded that the political will and governance system is essential to implement, address and deal with such complexity, as it is to keep the overall goal of sustainable livelihoods and natural resources while developing and formulating policy and engaging the stakeholders in decision-making process. In this regard, the regional and national policies should be formulated paying adequate attention to the local level its aspirations and demands and its links with national and region (Oblast and Rayon) levels. All concerned actors from their respective countries must share the common vision and goals and set the regional agenda (e.g. Trans-boundary co-operation and ecosystem management approaches at Central Asia) by ensuing sustainable use of resources and enhancing livelihood of local people living both upstream and downstream. The study is concerned with the development of generic guidelines for the design and implementation strategy. Formulation of enabling environment, legal and institutional framework for sustainable land management, poverty reduction and livelihood strategy, disaster risk reduction, regional co-operation and trans-boundary mountain regions are highlighted.

Delphi questionnaire was set up based on the existing policy and strategy documents of each country but it was hard to judge and specify the highest importance indicators or strategies for the specific countries. Although a structured questionnaire was provided in the Delphi process, some respondents made quite different interpretations and objected to specific questions/indicators, the use of terminologies or phrases when defining terms as well as to the

lack of 'described' definitions. Some respondents complained that the number of questions or indicators was too high and some of them had difficulties to judge the relevance of the indicator or its data requirements. However, we found that the Delphi approach was easiest when managing a structured questionnaire survey as there was less room for varying interpretations. Delphi questionnaire was set up based on the existing policy and strategy documents of each country but it was hard to judge and specify the highest importance indicators or strategy for the specific countries. Although a structured questionnaire was provided in the Delphi process, some respondents made quite different interpretations and objected to specific questions/indicators, the use of terminologies or phrases when defining terms as well as to the lack of 'described' definitions. Some respondents complained that the number of questions or indicators was too high and some of them had difficulties to judge the relevance of the indicator or its data requirements. However, we found that the Delphi approach was easiest when managing a structured questionnaire survey as there is less room for varying interpretations. The method is feasible to get the ideas from diverse stakeholders but the trade-off analysis between stakeholders' opinions has been figured out based on the expert opinions. It dramatically reduced the potential for generating new ideas, the views from organizations, political ideology and objective judgment in closed questions. Reasons for the difficulties may lay in the high degree of uncertainty related to the complex issue of Sustainability (Mrosek et al. 2006). It was observed that personal attitudes of some experts and their affiliation to an organization affected the overall results which did not always reflect their experiences. Such misleading stereotypes can create impediments to the development of trust, relationship building and effective communication (Kearney *et al.*. 1998). The weaknesses of Delphi studies include the fact that they require much time and raise difficulties regarding coordination and communication for consensus building among experts. Most of the national strategy and the plan were developed without proper design to monitor the implementation mechanisms, therefore there is not enough evidence to demonstrate that the common framework for developing strategy should be included in national strategy plans. Therefore, it is suggested to develop a common framework with monitoring mechanisms for the implementation strategy and a periodical assessment must be carried out.

In Kyrgyzstan, at least more than dozen policies related to Disaster Risk Reduction, Forestry, Land Use Management, Environment management, Livelihood and Poverty reduction etc. are/being drafted; including interim policies, DRR initiatives, National plan for Development of Forestry, Poverty Reduction Strategy Plan, Agricultural Development Policy, Strategy and

Action Plan for Sustainable Land Management, Biodiversity policy and national REDD strategy. Such strategies and action plans were developed through multi-level, multi-stakeholder negotiations between representatives from the government, I/NGOs, experts and locals but there is a major concern that there is a lack of implementation mechanisms for driving these policies effectively. Linking sustainable natural resources management with rural livelihoods is another critical aspect of the development of new NAPs. The elements of environment natural resources management, disaster risk management, livelihood and cross-cutting issues should be examined in order to achieve the millennium development goals and at the same time consider how progress towards other goals might impact poverty reduction and environmental sustainability. Some conclusions and policy implications which are relevant at all levels and to a variety of different actors are highlighted:

- Absolute clarity, defining the terminology and more description are needed regarding how different concept and definitions of Disaster Risk Management, Forest Management, Land Use, Biodiversity and Pasture Land Management, Environment and Ecosystem Management, Livelihood and Regional co-operation issues are being used and interpreted in different contexts to ensure that complex dynamic issues or most of cases cross-cutting issues are not confused and misrepresented.

- Greater policy attention to how livelihood and natural resources management strategies can help prevent poverty, natural disaster, forest and environmental degradation would be valuable. In many cases its contribution to livelihood promotion, disaster risk reduction, forest, land use, environment, ecosystem management have been tended to be overstated but its major contribution to livelihood enhancement has been somewhat overlooked.

- The action plans should ensure the interests, perceptions, indigenous knowledge and innovation and access for poor people in order to use, protect and manage the resources on which they depend. Policies which conserve the component of livelihood and natural resources management on which poor people's resilience is based need to be put in place to contribute to poverty reduction.

5.2 Recommendations

The study reflects on, and recommends the development of a clear and coherent common agenda (or set of priorities) on SLNRM considering the perceptions and opinions of different stakeholders. The national action plans allow space for meaningful participation of local

stakeholders including marginalized groups and take into account potentially differentiated perspectives and interests. NAPs should follow the guide to formulate their activities and plans by consultation process of several environment/forestry/social/DRR related government and non-governmental organization, NGOs, CSOs and CBOs. This action plans also encourage development of national action plans on DRR, forest management, land use, biodiversity, pasture land management, livelihood, environment management through multi-layer and multi-stakeholder consultation process . It is recommended to identify the regional agenda with giving high priority and promoting regional co-operation through high-level consultation process in each country. The national co-ordination and expert-led team should be formed, which will create a high-level trust and facilitate the implementation, and prepare integrated plan or framework to support the sustainable natural resources management and livelihood promotion. For the specific regions like Pamir, the areas-based comprehensive strategies and plans should consider the elements of socio-economic, bio-physical, and cultural nature and link all technical and financial activities or programmes of agencies with other activities or programmes of other organizations in order to produce a synergetic effect and impact in the area. Likewise, facilitative activities such as research and training. Advocacy and other innovative support services are also important in fostering effective sustainable livelihood and natural resources management systems.

The action plans must make full use of existing institutions and structures in the public as well as the private sector by avoiding the introduction of new governmental organizations and agencies wherever possible. It is recommended to encourage socially and environmentally responsible practices in the private sector, particularly companies operating from other countries, while considering the need for proper mechanisms to use and extract resource effectively. The NAPs should be focused and foreseen to be carried out over the next decade as an integrated global and national initiative that aims to enhance the management and use of resources, sustainable land user practices, participatory forest management, disaster preparedness and disaster risk management, considering afforestation and reforestation concepts/strategy as a way to improve livelihoods and sustain natural resources management.
Future strategy programme should be based on trans-boundary, biodiversity management, Sustainable Mountainous Land Management Model (SMLM) and climate change adaptation, social afforestation and reforestation strategy, community-based forest management strategy: e.g. Joint forest management or community participation in forest management. The general recommendations for national action plan are to:

- Revise/refine the current disaster risk management, PRSP, Environment, Forestry, Land Use policy, strategies and action plans in partnership with relevant stakeholders to increase ownership and to make it more effectively implementable.

- Due to the extremely diverse policy environment, which affects resources, and increasing demands of resources and challenges of addressing the demands of the society, the establishment of high-level collaboration between the science community and key policy makers in the Central Asia should be facilitated. This provides an active and efficient science-policy interface and fosters an inspiring and dynamic science-policy dialogue for developing strategy on livelihood and natural resource-related issues.

- The mountain ecosystem directly or indirectly supports a large population of Central Asia regions in terms of diverse ecosystem goods and services. Therefore, there is a need to continue supplying these products and services in a sustainable manner to maintain the ecological integrity of the area.

- Participating countries to focus on both research and development to take this initiative further through collaborative and multidisciplinary research with a clear focus on livelihood development and policy issues in relation with poverty and vulnerability in mountain areas.
- Identify and test the NRM and livelihood related policy questions to build a common understanding and solve the problems in an iterative and adaptive process to identify future directions and develop a vision, mission, goals and strategies and to focus on the needs of Central Asian member countries and to adjust strategies to take changing circumstances into account.

- Periodic monitoring and assessment of programme priorities and resources allocations in line with national plans such as PRSP, biodiversity conservation strategy, sustainable land use plan, national forestry sector plan in order to ensure effective implementation in the specific areas.

- Develop networking for regional capacity building, and policy and institutional support, capacity for sustainable livelihoods in border regions and tackle, through developing environmental processes and adaptation strategy, the promotion of cultural conservation, sustainable economic development, sustainable mountain tourism and

income generation activities, issues of governance, policies, institutions, gender, and equity concerns.

- There still remains an urgent need for systematic research on the linkages between environmental stewardship, sustainable land use management, watershed management and risk reduction strategies, regional conflicts and stability in Central Asia as part of a regional environmental agenda. The cross-border initiatives and regional cooperation on natural resources management that recognize the need to preserve something for the future should be built.

- Develop an appropriate and publicly available information dissemination system related to policies, legislation, directives, executive orders, relevant publications, data, programmes and projects at the center and in the districts.

- Encouraging partnerships building between appropriate GOs, NGOs, CBOs, civil society organizations (CSOs), development agencies and the private sector for effective planning, implementation of strategic interventions and monitoring of sustainable natural resources and livelihood promotions.

- Furthermore, the national action plans should consider both upstream and downstream population of the mountain area, which may appear more technical in nature, but is believed to lead to secure livelihood and well-being of the people of the area, while protecting their right to life and property.

Looking forward to Pamir regions, the identification of criteria and indicators for Pamir disaster risk, land use and ecosystem along with a comprehensive plan should be developed with a special focus on the present socio-economic and natural conditions. It is further recommend that the programmes of the different governmental and non-governmental agencies working in the region should be specifically focused on the core Pamir areas instead of main accessible and urban areas. For instance, the donor communities, local institutions as well as central government agencies should realize the importance of Pamir regions and should be given priority in program and planning. The donor and government agencies should make serious efforts regarding disaster preparedness and risk reduction in case of sporadic increases of the magnitude of natural disasters around the Central Asian countries. Local response mechanisms and developed approaches are important to deliver support on short, medium and long term basis to build the resilience of communities coherently. More attention

must be paid to the development of early recovery systems, infrastructure rehabilitation, developing comprehensive monitoring and forecasting models, and ensuring the indefinite provision of basic services in the absence of a state-led alternative.

The recommendation for developing national action plans for Kyrgyzstan have been formed based on key findings of Delphi survey, face to face meetings with policy makers, experts and researchers, policy documents and the outputs of national workshops which were designed to make a significant contribution toward the vision, strategic objectives, and system-level outcomes of the country. The recommendations are outlined and described according to the contributions in each category: DRR, Forest Management, Land use, Biodiversity and Pasture land management, Environment and Ecosystem management, Livelihood promotion and Co-operation, collaboration and other cross-cutting issues.

5.2.1 Recommendations for the Disaster Risk Reduction related Action Plans

Re-designing analytical framework of Hazard Social Vulnerability Assessment framework

The analytical framework of HSVRA should be re-designed combining vulnerability analysis and stakeholder analysis, the nature of natural resources practices, gender and social roles, community power, dynamics of resources use and so on. A standardized framework for assessing vulnerability to climate change impacts should be developed.

Creating legal and regulatory framework for effective disaster risk management

The action plans should build a new organization for interaction, financing and administration between inter-agency co-operations, develop technical regulation and normative and regulatory documents regulating DRR. Economic mechanisms to stimulate activity of enterprises to reduce risks and mitigate the effects of emergencies should be developed.

Assessing the risk of disasters, Kyrgyzstan

The national action plans should consider developing a scientific and methodological basis for assessing the environmental, social and economic consequences of emergency situations and risks of their occurrence to the population as well as introduce integrated risk analysis of emergencies. Greater donor coordination and true political will is needed to mainstream the DRR into each decision and policy making in time, for the implementation in the field.

Focusing on both Disaster preparedness and early recovery system

More attention must be paid to the disaster preparedness and the development of early recovery systems, infrastructure rehabilitation, and ensuring the indefinite provision of basic services in the absence of a state-led alternative. Such plans should focus on identifying, assessing and monitoring disaster risks, enhancing early warning and developing communication strategy to present these concepts in an accessible way in local language. A key recommendation would be to assess the need for an effective and decentralized multi-hazard early warning system, including the way of designing such a system, with regard to stronger monitoring, information analysis, communication, and outreach.

Preparing Mountain GeoRisk Assessment Model and forecasting

The 'Mountain GeoRisk Assessment Model should be prepared as well as forecasting, data sharing and early warning, coordination of disaster mitigation, preparedness and response, vulnerability assessment and enhancement of ecosystem and socio-economic resilience. The state system of integrated monitoring and forecasting of hazardous natural processes should be created based on GIS and remote sensing in the Kyrgyz Republic.

Conduct problem solving research for disaster risk reduction

The national plan should focus on conducting problem-solving research, methodological approach for getting deeper understanding and systematic study of the existing strategic risks, participation in development of state program and on action plans for disaster risk reduction.

Promote civil society-led monitoring of disaster risk reduction

NAPS should focus on promoting civil society-led monitoring of disaster risk reduction by introducing the concepts of full participation, transparency/information sharing and feedback mechanisms, which create an environment where all stakeholders – from community to government – can air their views and inform action planning The disaster monitoring and early warning system should be reviewed with regard to hazard category, network arrangement, monitoring and forecasting disaster events, communication of early warning to communities, training and manual requirements and community preparedness.

Building understanding and awareness with disaster preparedness and prevention

Understanding and awareness of disaster prevention should be built by using knowledge, innovation and education to build a culture of safety and resilience at all levels.

Building strong local partnerships for sustainability

The action plans should focus on building strong local partnerships for sustainability by combining the technical and institutional aspects of early warning systems and building the capacities of the relevant stakeholders and institutions and involve local civic organization and media/radio/FM in the development of an effective communications system. To better fulfill the role of media in disaster discourse, the investment and priority should be given to increasing political awareness and political pressure in order to draw attention on every policy level and change the perception of policy-makers to support and increase incentives for poor section of society significantly.

5.2.2 Recommendations for the Forest Management related Action Plans

Use as a framework for Joint forest management and community-focused ecosystem-based adaptation

The plan should focus on the Joint Forest Management (JFM) and use it as a framework or strategy for community-focused ecosystem-based adaptation for improved livelihoods and adoption of changed policies and practices for better adaptation in the region. JFM should be designed and implemented with more geographical coverage and encourage local peoples' participation. Conducive environment should be created for CBOs, civil societies, private companies, local government and individuals to take part in the activities that intensify JFM in order to enhance local peoples' access to natural resources for better livelihood.

Ensuring the integrity of ecosystems and their components

It is recommended to sustainably manage land resources, preserve biodiversity both within Specially Protected Nature Areas (SPNA) and productive landscapes, extend SPNA, and introduce integrated water resources management.

Improving resources governance to Sustainable livelihood promotion

Promoting sustainable livelihoods, alleviating poverty and contributing to national development through wise management, protection, preservation and restoration of forest and ecosystems should be the basic elements of national and local government policy.

Developing public-private enterprise development

Without fostering entrepreneurial innovations, neither the government nor the community alone can realize the full economic potential of the natural resources. Therefore, the plans should focus on developing the private-enterprise development strategy plan and invite all interests' parties to implement the plan effectively. The new policy and strategy should promote forest entrepreneurship in socially and environmentally responsible ways.

Developing and introducing a payment system for ecosystem services

It is suggested to develop justification and mechanisms to introduce payments for ecosystem services, introduce an environment tax and abolish cross subsidies.

Introducing innovative financing mechanisms for natural resources management

The national action plans should be introduced and address, together with partners, the areas of economic valuation of ecosystems and innovative financing mechanisms for natural resources management, including mechanisms such as Reducing Emissions from Deforestation and Forest Degradation (REDD+), payments for ecosystem services, climate change and adaptation strategy, and access and benefit sharing, just to name few .

Maintaining global, regional and national data base

The action plans should be enhanced with the regional and global data and impact the access to mountain ecosystem, biodiversity programme, climate change and strengthen the biodiversity and climate change adaptation.

Increasing the bio-productivity of ecosystems

The action plans should be based on the analysis and consideration of the systemic and environmental reasons for the degradation of ecosystems, conserving the agro-biodiversity and gene pools of species, stimulating ecosystem rehabilitation activities and introducing ways of reinstating ecosystems' natural bio-productivity after land has been used for economic needs.

Joint plan initiatives for pasture and high altitude land management

The state agencies for livestock, environment, and forestry should jointly develop a plan for the administration and management of pasture land, high altitude pasture and specified grassland areas. They should practice rotational grazing according to investigation of carrying capacity of range land and pasture land, encourage foddering tree plantations and other legume species.

Introducing environment-friendly technologies and approaches

It is recommended to create an incentive system for implementing clean technologies, develop programmes for introducing cleaner technologies in the most problematic sectors of the economy (energy, mining industry, transport) and promote renewable energy sources.

Identifying the limits and constraints of natural resources management

Reliable assessments of the volumes of renewable and non-renewable natural resources are recommended. The ecological capacity of areas should be determined. The system of limiting natural resources management, which at present is built on a permit system (licensing), which lacks reliable data on limiting the extraction of particular natural resources, should be enhanced.

Enhancing Community Forest Management Programme

Establishing the principle of community participation to protect, manage and utilize the forest that should be implemented under CFM and other community-based management modes with providing exclusive access rights to forest must positively discriminate the poor-section of society.

Improve technical forest management practices linking livelihood security

Forest management should be focused on managing forest with prescribed silviculture and on forest development activities based on the socio-economic and biophysical condition of resources in order to contribute to both forest health improvement and livelihood security. Improved silvopastoral systems, agro-forestry and reforestation strategy plan should be promoted for the Juniper and riverside forests.

5.2.3 Recommendations for Sustainable Land Management related Action Plans

Trade-off between poverty and environmental degradation

The trade-offs between poverty and environment degradation can be minimized if the promotion of ecosystem services (water, carbon and biodiversity), food security, better management of land use systems, public and private land management and silvo-pastoralisms etc. is ensured.

Promotion of adaptive research on Sustainable Land Management and Extension

There is an urgent need to further invest in research and extension, allowing the development of sustainable land use, pasture management systems and sustainable livelihood systems that reduce the loss of productivity and are capable of producing greater yields in ways that are consistent with environmental protection. On-farm participatory action research and innovation approaches to improving farm technologies, organic farming, sustainable agronomic, animal husbandry and mountain ecosystem management practices should be encouraged, for example through farmers' field schools.

Focusing on Sustainable land use Planning

Sustainable land use planning (agriculture, forestry, pasture land, watershed management) and the value of other resources are pivotal components of the development agenda. Therefore, the national actions should be prepared to meet local needs and aspirations as well as to attain national goals, with wider consultation with stakeholders at national and regional levels, focusing on sustainable land use planning for use at the district and village levels. Appropriate land use planning guidelines should be developed as per ecological regions or geographical areas in consultation with land use practitioners, policy makers, planners and experts. A mechanism for planning, monitoring and following up on SLM should be established and local farming practices should be innovated through local institutions, farmers, herders, forest and wildlife users as well as core group of public and private sector agencies.

Mainstreaming of Sustainable Land Management Concepts and Principles

The government of Kyrgyzstan should aim at increasing the knowledge and understanding of the concepts and principles of sustainable land management amongst central and local government planners, policy makers and other officials with administrative and technical responsibility for socio-economic development, environmental conservation, land use and water management, within the Pamir regions.

Recognizing tenure and user rights

The historic tenure and user rights of marginalized and rural communities- e.g. nomadic pastoralists, indigenous people must be recognized while developing action plans.

Partnership building with professional, private and other service providing agencies

The national action plans should focus to building the partnership with specific professional and business sectors and NGOs for livelihood diversification and to enhance resilience and support adaptation by vulnerable mountain communities and ecosystems.

Supporting alternative energy programme

NAPS should build on the institutionalization of incentives such as alternative energy (ICS, biogas), fodder and forage promotion, veterinary services, rangeland management at local level.

Practicing area-wise knowledge of farming practices

There is a lack of specific area-wise knowledge of farming practices. Neither are such practices developed and tested with a focus on specific areas. Therefore, it is recommended to develop plan for providing the areas-wise knowledge with technical and financial services for appropriate farming practices

5.2.4 Recommendations for Environment management related Action Plans

Stakeholder participation in planning and decision-making

Due to the lack of wider consultation process to formulate the programme, there is a big question of effective implementation, ownership of the programme which ultimately affects the sustainability or wider replication of the programme. It is recommend to contribute to and develop new research approaches and methods in forest management planning; giving due attention to the genuine needs of all stakeholders in all policy and decision making phases as well as all planning phases.

Mainstreaming of issues of environmental security and sustainability

It is recommended to mainstream strategic environmental assessment as a compulsory procedure in developing and implementing country development programmes and plans; to

promote cross-cutting environmental security and sustainability in sectoral and regional development programmes, and to consider natural resources sustainable management issues at local level within local socio-economic development plans.

Upgrading the environmental monitoring systems

The action plans should strengthen the institutional potential with a view on an environmental sustainability promotion through improved environment legislation, ensuring the efficient use of government funds and foreign aid for the highest priority conservation projects and upgrading the environmental monitoring systems.

Promoting wildlife farming and conserve wildlife habitat

The state agency should enhance its program to bring institutional capacity more in line with its wildlife conservation, wildlife habit and its farming policies by incorporating, wherever possible research, inventory, monitoring, campaign, planning and management. The systematic collection and assessment of data and knowledge concerning wildlife and wildlife habitat should be enhanced in those areas in which wildlife populations are deemed to be most susceptible to hunting and development pressures.

Harmonizing conservation measure

There should be a harmonized conservation measure combined with other government efforts to promote environmental sustainability through developing financial and economic mechanisms and to improve sound use of natural resources in various sectors of the economy.

Private sector involvement in the sustainable management of natural resources

It is recommended to develop and implement fiscal and market incentives for the private sector to sustainably manage natural resources; introduce and disseminate best practices of sustainable natural resources use by the private sector; and build capacity for partnerships between government and the private sector on a mutually beneficial basis.

Promote multiple-partnership approach

Multiple partnerships approach with a diverse set of strategies to achieve the regional and national goals to tackle the environmental issues is recommended.

Priority program to livestock improvement

Education, training and extension programs related to animal health, husbandry, fodder tree and grass plantation, marketing of livestock and livestock products should be emphasized and received the highest priority programme.

Establishing catchment conservation areas

Establishment of catchment conservation areas is recommended. Land productivity within such catchment conservation areas should be improved through construction of water reservoirs and irrigation facilities and the establishment of nurseries and tree plantations.

5.2.5 Recommendations for the Livelihood Promotions related Action Plans

Holistic views on pro-poor polices

The NAPs should focus on having a holistic view and a making a collaborative effort, as well as on developing pro-poor and pro-environment development policies in favor of ecologically sustainable livestock production process which will produce an inclusive and sustainable growth.

Developing Gender Equity and Social Inclusion (GESI) Guidelines

The action plans should be developed taking into account the GESI perspective and they should create an enabling environment for being accountable to all relevant stakeholders.

Mechanisms for the implementation of gender policies

Effective mechanisms for the implementation of gender policies should be created as part of public administration reform.

Participatory assessment of poverty and livelihood issues

The capacity of project partners to assess and analyze poverty and livelihood issues should be improved in a participatory manner as a mechanism for effective project planning and implementation

Combining pro-poor policy framework with improving good governance and institutional arrangements

The pro-poor policy framework combined with improving good governance and institutional arrangements at all decision making and political level in order to address the social structures and social transformation processes should be enhanced. The action plans should promote stronger local land and resource rights for local users, improved local participation in decision-making and leadership, increased transparency and responsibilities of local resource management institutions and stronger functional linkages among stakeholder groups.

Promote appropriate technologies and alternative energy sources

Current resources such as forest products and water use/consumption pattern should be assessed through appropriate technologies. Feasible substitutes such as improved cooking stove (ICS), biogas, solar energy, water storage systems should be promoted.

Promotion for establishment of enterprise development

Establishment of enterprise development should be promoted considering the nature of diverse livelihood opportunities based on local resources, skills, and capacity, knowledge and market conditions. This can be promoted through introduction of incentive schemes such as training, market networking and tax rebates.

Enhancing equitable benefit sharing mechanisms

The action plans involving of community, private and business sectors in the management of unused public land as afforestation/reforestation, arboretum, gardens, picnic spots, etc. should be promoted, ensuring equitable benefits for the local people.

Empowerment of local people to exercise their rights to services

Local people should be empowered to exercise their rights to make rightful demands concerning their basic needs and streamline the development process.

5.2.6 Recommendation for the Co-operation, co-ordination and other cross-cutting issues related Action Plans

Clear vision, goals, role, responsibilities and implementation plan

The establishment of effective working relations between all relevant government departments and agencies, nongovernment organizations, academic institutions, international

and bilateral agencies, and components of the private sector should be promoted. Clear roles, or potential roles, in the implementation of the National Action Plans (NAPs) of Kyrgyzstan should be assigned. A clear vision should be developed the level of commitment to implement the sustainable livelihood and natural resource management among individuals, government institutions I/NGOs, bilateral agencies, private sectors, business should be raised.

Develop vision and attempt to establish Central Asia regional co-operation

Regional Cooperation should be encouraged to include "sustainable development through livelihood promotion and natural resource management" as one of its core principal objectives. A vision and policy guidelines should be developed and the forms of regional co-operation and comparative study of other countries' experiences, the members countries' consideration should be identified. There should be an attempt to establish Central Asia regional co-operation.

- Regional Cooperation should be encouraged to include "sustainable development through livelihood promotion and natural resource management" as one of its core principal objectives and policy guidelines.
- The regional co-operation must be encouraged and promoted among Central Asian countries, to exchange programs related to research, education, training and extension in the fields of livelihood and natural resource conservation and management.
- The private sector and business partners in the Central Asia should be encouraged to adopt policies to ensure only legal provisions and follow the rule of law in any kind of supply chain: timber and non-timber productions.
- In order to enhance regional cooperation, an enabling legal and regulatory framework, regional strategic planning between concerned countries (e.g Tajikistan and Kyrgyzstan) should be created. A trans-boundary strategy and action plan with common agreed vision, goals and technical and management requirement for the sustainable management of the High Pamir and Pamir-Alai mountain ecosystems should be formulated.

Understanding on cross-sector and inter-cooperation policies issues

The understanding of strategic and cross-sector and inter-cooperation policy issues should be improved based on existing scientific knowledge and expertise. The essential strategy is to

adopt national mainstreaming and harmony through inter-agency coordination and meaningful partnership and co-ordination for implementable actions.

Identify regional agenda

A sustainable vision for a safer twenty-first century needs to involve a new assessment of collective efforts to identify regional agenda helping to break the links between natural resource scarcities and conflicts between Central Asian countries. The win-win solutions are essential as far as access to natural resources and livelihood enhancement of different socio-economic conditions and political issues are concerned. More attention should be given to establishing strong regional cooperation including regular meeting, monitoring and evaluation of programs. Priority should be identified especially trans-boundary research programme.

Avoid the duplication of plan and develop possible integration plan

Avoiding duplication of action plans is necessary as commitments and develop programme and integrated plans with identifying a synergy solution and common agreed decisions to inter-linkage DRR, Environment, Forestry into Poverty issues and aiming for milestone to achieving a time-bound target under the mandates of various agencies (Environment/ Agriculture/Forestry/ Emergency etc.).

Enhancing science-policy dialogue

The national action plans should be enhanced science-policy dialogue across all stages of the policy process for designing, formulating, monitoring and evaluating livelihood, forest, land use and DRR-related policies, programmes, instruments and strategies as well as governance development. There should conduct periodic policy dialogue to updating the policies for ensuring smooth and effective implementation of sustainable natural resource and livelihood strategies and review at central, regional and district levels.

Strengthening regional co-operation and cross boarder initiatives

The strengthening of regional co-operation and cross boarder initiatives should focus on identifying the regional agenda and enhancing trans-boundary co-operation, inter-governmental agency co-ordination, resource management, common resource utilization, social and cultural development.

Establishing mechanisms for communication and information sharing strategy

NAPs should establish mechanisms for regular communication and information sharing between the policymakers, scientific community and relevant members from concerned countries, lead experts of the concerned fields and key stakeholders from the civil society and research institutions. Capacity for informed decision making should be built and provided the best possible expertise and the latest research-based information from research and network.

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ANNEX

Annex 1: ***Lists of experts and officials of face to face meeting during the visit in Kyrgyzstan***

SN	Date	Name/Designation	Organization	Objectives	Remarks
	1 Dec 2011	**Travel to Bishkek to Dushanbe**			
1	2 Dec 2011	Shahid Punjani, Chief executive officer	AG Khan Foundation (Kyrgyz Republic	shared about the objective of visit and plan for forming steering committee and further face-to face meeting with possible organization and respondents for the Delphi study	GJ, Tolkun
2		KANESHBEK Sainazarov, Project manager	UNDP DRR programme	shared about PAMIR project and Delphi study and possible project-partnership	
3		Samat Karmyshov, Project co-ordinator	UNDP/EC project: Sixth DIPECHO Action Plan: Enhancing DRR capacities in Central Asia	shared about PAMIR project and Delphi study and possible project-partnership	GJ, Tolkun
4		Kaldarov Mukash, Chief Technical Advisor a.i.	UNDP DRM prgoramme, Kyrgyzstan		
5		Marat Abdyramanov, Specialist	UNDP DRM prgoramme, Kyrgyzstan		
6	3 Dec, 2011	Urmatbek Mambetaliev , Project co-ordinator	PES and REDD+ in Kyrgyzstan, The regional environment centre for Central Asia Kyrgyz Branch (CAREC)	Propose of visit and shared about PAMIR project and request for his further support for study	GJ
7	5 Dec, 2011	Mumukulov Arstanbek Supataevich, Colonel	Secretary of the National plateform on DRR, Kyrgyz Republic	Propose of visit and shared about PAMIR project and request for his further support for study	GJ, Tolkun
8	Dec 6, 2011	Chad Dear, Senior Research Scientist	Mountain Societies Research Centre, University of Central Asia	propose of visit and shared about PAMIR project and request for his further support for study	GJ, Tolkun
9		Tologon Mamatov, National project manager	National Centre for Mountain Regions Development of the Kyrgyz Republic	Discussed about the strategy plan of PALM and their further planning and request for his support for the study	GJ, Tolkun
10		Kadyrov Bayanbek, Director	The state agency on Environment Protection and Forestry of Kyrgyz republic	Shared about PAMIR project, MoU, NAPs and further possible collaboration	GJ, Tolkun and Urmut
11		Salkyanmambetova Baglan, Head of International Relationship	The state agency on Environment Protection and Forestry of Kyrgyz republic	Shared about PAMIR project, MoU, NAPs and further possible collaboration	
12		Askar Davletbakov, Scientist	Institute of Biology and soil science, Scientific academy, Bishkek, Kyrgyz Republic	Shared about PAMIR project and Delphi study and possible support for organizing meeting with other experts	GJ, Tolkun and Urmut
13		Simone Charre, Project manager	PES and REDD+ in Kyrgyzstan, The regional environment centre for Central Asia Kyrgyz Branch (CAREC)	discussion about the PES concept and PAMIR project and about DELPHI study for developing the NAPs	GJ, Tolkun and Urmut
14	7 Dec, 2011	Nurlan Zhumaev, Expert	Department of the Agro-industrial Complex and Natural Resources, Office of the Prime Minister of the Kyrgyz Republic	Discussion about the PAMIR project and concept on NAPs and Delphi Survey and feedback and further support	GJ, Tolkun and Urmut
15	8 Dec, 2011	Shabdan Alishov, Social scientists	Parliamentarian office, Kyrgz republic	Discussion about the PAMIR project and concept on NAPs and Delphi Survey and feedback and further support	GJ
16	9 Dec, 2011	Umut Zholdoshova, Environmental programms coordinator	Rural Development Fund, Bishkekm Kyrgyz Republic	Discussed about Delphi survey and possible list of respondents	
17	11 Dec, 2011	Aitkul Burkhanov, General director	Association of Forest and Land Users in Kyrgyzstan	Explored about PAMIR project and objective of the study	GJ
18		Elnura Zholdosheva	Association of Forest and Land Usersin Kyrgyzstan		
19		Hagahob Kyutapdek	Association of Forest and Land Users in Kyrgyzstan		

Annex 2: Lists of Participants attendance of National workshop, Osh, Kyrgyzstan (August 2012)

SN	*Name*	*Designation/Institutions*
1	Kachibekova Elmira	Representative of the Environment and Forestry Protection Agency
2	Jumabaev Kamalidin	Supervisor of the Civil Protection department, Osh Technical University
3	Berbaeva Chinara	Lead specialist of the National Platform Secretariat of DRR
4	Jumagaziev Zamirbek	Head of the Osh MES in KG Office
5	Svarov Muhamed	Head of the Crisis Situation Management Center MES KG
6	Ajybaev Turdubek	Director of the Monitoring and Forecast Department of ES MES KG
7	Kurbanbekov Musa	Head of the MES KG department in Chon-Alai region
8	Anapiyaev Shermamat	Lead specialist of MES KO in Alai region –Head of the Jekendi AO
9	Japarov Jumadilla	Head of Chon-Alai AO
10	Batyrkulov Akmat	Head of the Kasha-Suu AO
11	Toimatov Berdish	Head of the Sary-Tash AO
12	Myimatov Turdukan	Head of Sary-Mogol AO
13	Kadyrov Vrachbek	Head of the Taldy-Suu AO
14		Lead engineer of the Osh AO branch "Kyrgyz Head University of Engineering Research"
15	Dyikanbaev Kybanychbek	Head of the South-Kyrgyz Geology Expedition
16	Sulaimanova Jyldyz	Regional manager of the PF MSDSP KG in Osh region
17	Chiranjewee Khadka	BOKU University, expert
18	Ms. Tolkun Jukusheva	Manager of the DRR department
19	Jalilova Gulnaz	International coordinator of the "PAMIR" project
20	Kadyraliev Akimbek	Regional manager of the PF MSDSP KG of Alai office
21	Muratov Omurbek	Regional manager of the PF MSDSPG KG of Chon-Alai office
22	Murzabekov Akmat	Engineer of the PF MSDSP KG project "PAMIR"
23	Chekirbaev Meimanbek	Manager of the ES AKTED KG department
24	Sattarov Saadat	Coordinator of the PF "Save Children" DIPECHO -7 project
25	Ten Tatiana	Coordinator of the ES UNICEF program
26	Umaraliev Abdurasul	Social mobilizer of the PF MSDSP KG "PAMIR" project
27	Akaev Kubanych	Senior geologist of the PF MSDSP KG "PAMIR" project
28	Mendibaev Bakai	Junior geologist of the PF MSDSP KG "PAMIR" project
29	Nikolaenko Aleksei	GIS specialist of the PF MSDSP KG "PAMIR" project
30	Beisheev Erkin	Coordinator of the PF MSDSP KG "DIPECHO-7" project
31	Bargybaeva Ykybal	Education specialist of the PF MSDSP KG "DIPECHO-7"