

# Lasbela

Integrated District Development Vision



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# Abbreviations and Acronyms

ADB	Asian Development Bank
AI	Artificial Insemination
BCDA	Balochistan Coastal Development Authority
BCS	Balochistan Conservation Strategy
BDA	Balochistan Development Authority
BEMIS	Balochistan Education Management Information System
BEPA	Balochistan Environmental Protection Agency
BF&WD	Balochistan Forest and Wildlife Department
BHMIS	Balochistan Health Management Information System
BHU	Basic Health Unit
BLGO	Balochistan Local Government Ordinance, 2001
BPM	Best Practices Method
C&W Dept.	Communication and Works Department
CBO	Community Based Organization
CCB	Citizens' Community Board
CMI	Climatic Moisture Index
CSO	Civil Society Organization
DCO	District Coordination Officer
DCR	District Population Census Report
DERA	Drought Emergency Relief Assistance
DFID	Department for International Development, United Kingdom
DHH	District Headquarters Hospital
EDO	Executive District Officer
EIA	Environmental Impact Assessment
EOBI	Employees Old-age Benefit Institution
EPZ	Export Processing Zone
ESR	Education Sector Reforms
ESRA	Education Sector Reform Assistance Program
GoB	Government of Balochistan
GoP	Government of Pakistan
GB	Gilgit Baltistan
GEF	Global Environment Facility
GIS	Geographic Information Systems
GST	General Sales Tax
HITE	Hub Industrial and Trading Estate
HMIS	Health Management Information System

HNP	Hingol National Park
ICZMP	Integrated Coastal Zone Management Plan
IDDV	Integrated District Development Vision
IEE	Initial Environment Examination
IWRM	Integrated Water Resource Management
IPM	Integrated Pest Management
IPP	Independent Power Producers
IPP	Independent Power Plant
IUCN	International Union for Conservation of Nature and Natural Resources
IUCNP	International Union for Conservation of Nature and Natural Resources, Pakistan
KESC	Karachi Electric Supply Corporation
KPK	Khyber Pakhtunkhwa Province
KPP	Khushhal Pakistan Programme
Lasbela CC&I	Lasbela Chamber of Commerce and Industry
LIEDA	Lasbela Industrial Estates Development Authority
LGOs	Local Government Ordinances
LPG	Liquefied Petroleum Gas
MAP	Medicinal and Aromatic Plants
MCH	Makran Coastal Highway
MDGs	Millennium Development Goals
MPA	Member Provincial Assembly
MTDF	Medium Term Development Framework
NCCW	National Council for Conservation of Wildlife
NCS	National Conservation Strategy
NEQS	National Environmental Quality Standards
NGO	Non-Governmental Organizations
NOC	No Objection Certificate
NRM	Natural Resource Management
NRSP	National Rural Support Programme
NWFP	Non Wood Forest Product
O&M	Operation and Maintenance
PAs	Protected Areas
PAMP	Protected Areas Management Project
PBM	Pakistan Bait-ul-Mal
P&DD	Planning and Development Department, GoB
PCRI	Pakistan Cotton Research Institute
PEPA	Pakistan Environmental Protection Authority
PF	Protected Forest

PFC	Provincial Finance Commission
PGS	Performance Grant System
PHED	Public Health Engineering Department
PIA	Pakistan International Airlines
PPIB	Private Power Infrastructure Board
PPP	Purchasing Power Parity
PRSP	Poverty Reduction Strategy Paper
PSDP	Public Sector Development Programme
PTCL	Pakistan Telecommunication Company Limited
PTDC	Pakistan Tourism and Development Corporation
QDA	Quetta Development Authority
QESCO	Quetta Electric Supply Company
RHC	Rural Health Centre
SEA	Strategic Environmental Assessment
SMI	Soil Moisture Index
SPO	Strengthening Participatory Organization
SPOT	Satellite for Earth Observation
STEP	Society for Torghar Environmental Protection
SUSG	Sustainable Use Specialist Group
ToRs	Terms of Reference
TB	Tuberculosis
TMA	Tehsil Municipal Administration
TMO	Tehsil Municipal Officer
TOI&S	Tehsil Officer Infrastructure and Services
TOP	Tehsil Officer Planning
TTC	Technical Training Centre
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environment Programme
UNICEF	United Nations International Children and Education Fund
UPS	Uninterruptible Power Supply
WAPDA	Water and Power Development Authority
WatSan	Water and Sanitation
WB	World Bank
WCS	World Conservation Strategy
WSSD	World Summit on Sustainable Development
WWF	World Wide Fund for Nature
WWF-P	World Wide Fund for Nature - Pakistan

# Executive Summary

Formerly a princely state, Lasbela District is the most south-easterly coastal district of Balochistan Province, bordering Karachi and Dadu Districts in Sindh and Gwadar, and Awaran and Khuzdar Districts in Balochistan. It comprises hills and mountains in the east, north, and west, an alluvial plain in the centre and a narrow coastal strip dotted with the mangrove swamps of Sonmiani Hor in the south. The population of the district was 312,695 in 1998;<sup>1</sup> it is projected to be 422,000 in 2011 and 511,000 in 2021.<sup>2</sup> The land area is 15,153<sup>3</sup> sq km.

A range of natural resources including water, agriculture, forests (both terrestrial and mangrove), livestock and rangelands, wetlands and fisheries (both inland and coastal), and wildlife and protected areas exist in the district. The natural resources suffer from lack of land use planning and over-exploitation, resulting in degradation, affecting the subsistence and livelihoods of the local people. A lack of understanding, concern and investment for sustainability is also prevalent. The recent trend of pumping out water for cultivation of banana, other fruit orchards and vegetables is resulting in the rapid depletion of ground water.

While vast tracts of cultivable plain lands exist, water for irrigation is a key constraint in the expansion and development of agriculture. After a long gap since the construction of Hub Dam, the Windar Dam and Hingol Dam initiatives are now being pursued, and there is still more potential for water development. While agriculture and livestock marketing have remained imperfect, a proper Agriculture Market is being established at Uthal.

The climate of the district is suitable for agriculture, livestock and poultry. However, productivity in the agriculture and livestock sectors is low due to low inputs and traditional practices that are an outcome of poverty and isolation. All three aspects of the livestock sector, breed, feed and disease are weak. In the coastal areas, mangroves are over-exploited and consistently degrading. Coastal fisheries, one of the sectors identified by WB<sup>4</sup> (2007) for its potential to boost the province's economy, have suffered due to over-exploitation and unhealthy fishing practices.

Culturally, Lasbela District is very rich, with archaeological sites, religious shrines for both Muslims and Hindus, historical graveyards and graves. It is a peaceful district of hospitable people living in harmony with nature, without ethnic conflict. The natural heritage of the district is also of global importance and includes Hingol National Park (HNP), and two Ramsar Sites, species of wild animals and plants, vast pristine beaches and an outstanding panoramic landscape. The cultural and natural wealth of the district has, however, not yet been exploited though tourism.

The Karachi–Quetta National Highway serves the district and its coastal areas benefit greatly from the Makran Coastal Highway (MCH). The towns and larger villages are linked by roads. To take advantage of their proximity to the industrial and commercial hub of Karachi, the Hub and Windar industrial and trading estates have been developed and the Uthal/Bela Industrial Estate at Zero Point is being developed. Marble City is already processing the marble extracted from Dureji and

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1 Government of Pakistan. Population Census Organisation. District Census Report (1998) Lasbela. Islamabad: PCO, Statistics Division, GoP, 2001.

2 National Institute of Population Studies (NIPS).

3 Survey of Pakistan – Map of Lasbela District (2004).

4 World Bank, Asian Development Bank and Government of Balochistan. Balochistan Economic Report. Quetta: GoB, 2008.

other districts. Ship breaking has evolved into an old and large-scale industry that contributes to livelihoods and the economy.

Large volumes of industrial wastes, effluents, and emissions are unsafely disposed of and untreated industrial effluents are discharged into water bodies. Workers' safety and occupational health remain of concern. The closed textile, engineering and chemical industrial units need immediate government attention. Policies and other options would be needed to restart these units or establish new ones. The Gadani ship breaking industry suffers from inconsistency in federal and provincial policies, lack of economic incentives, pollution, and out-dated technology.

The district has deposits of important metal and non-metal minerals including lead, zinc, marble, limestone, etc. The issues for the mining sector are wastage, low level of exploitation, inadequate exploration, workers' safety and occupational health and pollution. Added to this is the weakness of the Balochistan Directorate General of Minerals and Mining, Quetta which manages mining. This includes exploring minerals, developing feasibility reports, attracting investors, collecting and electronically managing data, promoting mining, facilitating modernization of mining and value addition of minerals, monitoring production of minerals, and collecting royalty.

Unplanned development of settlements has resulted in insurmountable environmental and other issues. Solid waste, hospital waste, air pollution, noise pollution, water and sanitation (WatSan) are the pertinent issues for the housing and settlement sector. There is no safe disposal of solid and hospital wastes.

Social indicators relating to health, education, WatSan and poverty are weak. Lack of drinking water is a critical issue in the coastal areas. The potential work force, although a great asset as a human resource, is unskilled and lacks the aptitude to engage in industrial and other development activities, which require specific skills. By developing the industrial estates of Hub and Windar, the people of Hub have become well off, while many people in rural areas live in poverty without even basic facilities.

WB (2007) has identified industry, agriculture, livestock, fisheries, minerals and mining, eco-tourism, transport and trade as the pillars of growth for Balochistan. Lasbela district has all these in significant quantity. It is one of the two coastal districts of Balochistan. It is rich in natural

resources and comparatively advanced in industry, communication infrastructure and mining. Since it is adjacent to Karachi, Lasbela is developing very rapidly.

The Integrated District Development Vision (IDDV) for Lasbela was developed through a wide consultative process as a sustainable development agenda using integrated planning for environment friendly and sustainable development, conservation and sustainable use of natural resources and protection of its environment. It also provides an implementation framework for implementing the measures listed in all sectors and cross cutting themes.

Understanding how governance has evolved, and responding to the critical challenges associated with the transition can help in identifying the way forward for a system of Good Governance. There is a strong nexus between governance, development, poverty and the environment in any administrative unit, small or large. Poor governance in developing countries has not allowed people to rise above the poverty level and safeguard their traditional means of livelihood or the environment.

Devolution, as one of the options to improve governance at the local level, did not succeed in changing the status quo in Pakistan due to various reasons. The devolution system introduced was a compromised one to begin with, and this was further compromised during its implementation. The vision, understanding and skills of the elected Nazims and councillors to run the system successfully were not developed to the desired level. The most important reason for the lack of success was, however, lack of cooperation and support by the key players, i.e., the bureaucracy, politicians and the provincial government because of their interest in retaining power, authority and influence.

The local government established under the BLGO 2001 was reverted in January 2010 to BLGO 1980 in Balochistan and other provinces, and Administrators replaced the Nazims. The revised system of local government will be decided and notified prior to the elections expected in 2011. It is important that the new law incorporates the positive points of the devolved system, especially to ensure effective participation of people in local government and growth of local leadership.

The priority programmes and projects envisioned in the IDDV are:

1. Improving coverage and quality of education, health, WatSan, electricity, gas and other services;

2. Surface water development by developing mega and small storage and recharge dams respectively, including early completion of Windar and Hingol Dams, with environmental safeguards including the environmental flow to estuaries and mangroves; controlling depletion of ground water by shifting subsidy on agricultural tube wells to technology-based efficient irrigation systems (drip, bubbler, sprinkler); land levelling; water management including lined channels or PVC pipes; fruit and crop diversification to include the low delta demanding; and controlling water pollution from municipal discharges and industrial effluents;
3. Expanding, modernizing and commercializing the agriculture sector including the use of efficient irrigation systems; improved inputs, i.e., seeds, fruit planting stock, manure and natural and chemical fertilizers, agricultural machinery and equipment, integrated pest management (IPM), appropriate agricultural pre- and post-harvesting practices; expanding floriculture; improving coordination between research and extension and outreach of the latter; improving marketing information and facilities (early completion and operation of the Agriculture Market at Uthal); and facilitating access to credit;
4. Modernizing and commercializing the livestock sector by developing dairy farms; improving breeds, health and feed of livestock; procurement of and cross breeding with high yielding milk, beef and meat breeds (using proven sires and artificial insemination); expansion of areas under fodder crops; and development of rangelands; managing sustainable grazing; improving coverage of vaccination, de-worming and treatment of livestock; and partnership between the public and private sectors and communities with guaranteed equity in benefit-sharing with communities;
5. Further developing poultry farming to its optimum potential;
6. Conserving and sustainably utilizing the coastal fisheries and mangroves for subsistence and livelihood of the coastal communities by establishing best practices;
7. Further expanding the industrial base with greater focus on SMEs and improving the environment friendliness of industries at Hub, Windar, Zero Point, etc.;
8. Promotion of natural resource-based (e.g. fruits, vegetables, livestock, poultry and fisheries) small and medium enterprises;
9. Further exploration and expanding exploitation and value addition of minerals, and asking for strengthening of the Balochistan Directorate General of Minerals and Mining as a first step;
10. Realizing the huge potential of nature and culture tourism and ecotourism;
11. Developing the skills and aptitudes of the labour force by launching intensive human resource development initiatives for promoting SMEs and livelihoods;
12. Protecting and rehabilitating natural forests and raising and maintaining forest plantations of multipurpose and low delta demanding trees on marginal lands or as agro-forestry;
13. Conservation and sustainable use of wildlife and protected areas on scientific lines though management planning and implementation with community participation;
14. Environmental protection including controlling air, water, noise, soil, land, coast and sea pollution; safe disposal of sewerage and industrial effluents, solid waste, hospital waste and industrial waste;
15. Master planning and up-gradation of all existing large settlements and proactive planning of new medium sized settlements, especially near the industrial and trading estates, and centres of commerce and trade;
16. Reprioritisation of investments for boosting health, WatSan, agriculture, livestock and rangelands, fisheries, wildlife and protected areas, tourism and watershed and forestry sectors. Currently the five priority sectors in the district in accordance with current trends in allocation of funds through PSDP during three years (2008-2011) in descending order are Roads, Education, Irrigation, Drinking Water and Power.
17. Developing natural resource sectors, especially agriculture, livestock and poultry, coastal fisheries, mineral and mining, wildlife and protected areas, tourism, health, WatSan, and human resource development for SMEs and livelihoods;

18. Improving governance by strengthening institutions; enhancing capacities of individuals; turning political interference into positive involvement; improving intra- and inter- agency coordination and horizontal information flows, especially to the masses; establishing effective one-window complaints and grievance mechanisms in the office of the Deputy Commissioner/DCO; establishing a comprehensive data base at the district level with nodes to all district offices; displaying transparency by introducing an effective monitoring and accountability system; ensuring objectivity and results; curbing corruption, malpractices and delays; promoting participatory and consultative decision making, planning and management mechanisms; and providing an enabling environment for public sector agencies, the private sector, NGOs, academia and the media;
19. Undertake a complete overhaul of the mandates, priorities, structures, systems and procedures of all public sector agencies at the district level, which is informed by their SWOT analyses and Management and Programme Review;
20. Seizing the opportunity to develop Lasbela District as a twin satellite of Karachi, as has happened in case of industry, and proactively planning its growth and development accordingly.

The balanced growth model is appropriate for Lasbela District, despite resource and capacity constraints. A balance between society, economy and the environment is crucial for sustainable development. The balance between population and resources is lacking and natural resources are depleting due to unsustainable use by the past and present generation, not caring for the needs of the future generations. The real issue is of relative prioritization and sharing of financial resources. For example, the major investments in the public sector were on roads and other infrastructure with very low or no investment in natural resources and the social sectors. A balanced re-prioritization is needed for future investment.

Improvement in both macro- and micro-economic conditions is important for the sustainability of the district. The former creates an enabling environment for appropriate economic growth (with

participation and equity) and the latter helps in the trickle-down effect, which helps in equity and poverty reduction. For example, corporate farming uses technology and reduces production, transportation and marketing costs and can involve the community through cooperative farming or shareholding in corporate farming programmes.

The policy and legal framework approved by the federal and provincial governments creates an enabling environment and provides positive or perverse economic incentives. An example is the subsidized flat rate tariff on agricultural tube wells, a joint policy decision by the federal and provincial governments and WAPDA with short-term benefit to agriculturists but long-term repercussions on ground water.

An implementation strategy will consist of a short term Five-Year flexible First IDDV Action Plan coinciding with the Five-Year Plan 2010-2015 of the government to implement short-term measures; a medium-term flexible Five-Year Second IDDV Action Plan for implementing the medium-term measures and throw forward in the various sectors during 2015-2020; and a Five-Year flexible Third IDDV Action Plan to implement the long-term measures and the throw forward during 2020-2025.

The implementation of the Action Plan will be monitored annually and major constraints in implementation will be identified and addressed. Its mid-term impact on sustainability of the district will be assessed in the third, eighth, and thirteenth years of implementation to see its effectiveness and impact, and make adjustments and revisions as required. The IDDV may be revised in 2025, in case the situation, issues and options to address the issues have changed significantly and additional opportunities have been created by that time.

Funds will remain the main constraint to the district in implementation of the IDDV. Lasbela District generates significant revenue and for this to continue it needs a major share of the revenue for maintenance alone, apart from a development budget, which will create additional assets, capacities and resources. The district has great potential in this regard. It is therefore, important that it should get adequate allocations from the revenue budget and share from the GST to avoid degeneration of its capacity to generate revenue and enough of a development budget for maximum realization of its development potential.



# 1. Lasbela District

**A** former princely state in India, Lasbela takes its name from two words, 'las', meaning plain, and 'bela', meaning jungle. Lasbela was notified as a district on 30 June, 1954. The district is on the border of Balochistan province and is situated between 24°-54' and 26°-37' north latitude and 64°-02' and 67°-28' east longitude. In the north, it borders District Khuzdar, in the east, Dadu, Karachi East and Karachi West, which are districts in Sindh, in the south, the Arabian Sea, and in the west, the Gwadar and Awaran Districts of Balochistan.

Lasbela's geography and landscape is diverse and interesting. The district is divided into three distinct geographical regions: the north-eastern mountains and hilly areas, the south-western hilly area and the central plain or the Porali trough. In between the ranges are the important valleys of Windar, Wirahab and Hub. These are the flood plains of the rivers and streams flowing from the hills of Moro and Pub ranges in the north and east of the plain and Haro and Hala ranges lying close to the western boundary of the district. The alluvial plain surrounding Bela Town extends southwards up to Sonmiani Bay, which is flanked by the mud flats of Damb and raised sea-beaches, situated some 15 to 25 metres above sea level.



The plain consists of alluvium deposits of Porali, Kud and other rivers. The hilly region situated on the west of the alluvial plain of the Porali extends along the Makran coast.

In the south is Sonmiani Hor, a narrow coastal strip dotted with mangrove swamps. It is an agriculturally underdeveloped zone with untapped water resources.

According to the population census of 1998, the population of Lasbela District was 312,695 persons in a land area of 18,254 sq. km. The National Institute of Population Studies, Islamabad projects that the population will increase further, to 422,000 and 511,000 in 2011 and 2021, respectively.<sup>5</sup>

Map of Lasbela District



Design: Mumtaz Haider Khan, IUCN. Source: Balochistan Disaster Risk Management Plan (2008)

5 NIPS (2004). Pakistan Population Datasheet and Estimates of Population of Provinces and Districts of Pakistan 2001, 2004, 2011 & 2021; National Institute of Population Studies, Population Division, Islamabad.

## 2. Lasbela Integrated District Development Vision

### 2.1 Context

**A** development vision should be able to mobilise people and resources — financial, environmental and political — to achieve common development goals. It must be shared by a majority of the people and therefore, it is crucial for it to be developed through a consultative process involving local residents as well as a wide range of stakeholders.

In the context of Lasbela District, stakeholders include the people of the district as well as the local, provincial and federal governments, the private sector, civil society organisations, educational institutions, research organisations, the media, and donors.

#### Global Initiatives

Growing international concern over unsustainable levels of resource use and recognition of the need to combat environmental degradation led to the development of the World Conservation Strategy (WCS), published in 1980 by the International Union for Conservation of Nature and Natural Resources (IUCN),



the United Nations Environment Programme (UNEP) and the World Wide Fund for Nature (WWF). The main objectives of the WCS were to maintain essential ecological processes and life support systems, preserve genetic diversity, and ensure the sustainable utilisation of species and ecosystems. The WCS stressed the importance of development within “the reality of resource limitation and the carrying capacities of ecosystems” (<http://anewmanifesto.org/timeline/the-world-conservation-strategy>). In 1987 *Our Common Future*, also known as the Brundtland Report, was published, providing what has become the standard definition of sustainable development: development that meets the needs of the present without compromising the ability of future generations to meet their own needs. The concept of conserving genetic diversity also influenced the formulation of the Convention on Biological Diversity in 1992.

### **Rio Declaration and Agenda 21**

The Rio Declaration on Environment and Development, and the Statement of Principles for the Sustainable Management of Forests, were adopted in 1992 at the United Nations Conference on Environment and Development (UNCED). Agenda 21, also adopted at

UNCED, outlines a comprehensive plan of action for sustainable development, with measures that are to be taken not just globally but also at the national and local levels (see Box 1). The need to fully implement Agenda 21 and to abide by the commitments of the Rio Declaration were reaffirmed by the global community at the World Summit on Sustainable Development (WSSD) in 2002 (<http://www.un.org/esa/dsd/agenda21>).

### **Millennium Development Goals**

The United Nations Millennium Declaration, adopted in 2000, calls for a global partnership to reduce extreme poverty and ensure environmental sustainability. It sets a series of time-bound targets, with a deadline of 2015. These targets have come to be known as the Millennium Development Goals (MDGs) (<http://www.un.org/millenniumgoals/bkgd.shtml>) (see Annex 1). As a signatory to the Millennium Declaration, Pakistan has committed to achieving the MDGs by 2015. Most importantly, for the purposes of the IDDV, many of these goals are to be implemented at the local level.

The federal as well as the provincial governments of Balochistan have

### **Box 1: Local authorities' initiative in support of Agenda 21**

Agenda 21 recognises the importance of local-level action (Chapter 28):

#### **Basis for action**

28.1. Because so many of the problems and solutions being addressed by Agenda 21 have their roots in local activities, the participation and cooperation of local authorities will be a determining factor in fulfilling its objectives. Local authorities construct, operate and maintain economic, social and environmental infrastructure, oversee planning processes, establish local environmental policies and regulations, and assist in implementing national and subnational environmental policies. As the level of governance closest to the people, they play a vital role in educating, mobilizing and responding to the public to promote sustainable development. [...]

#### **Activities**

28.3. Each local authority should enter into a dialogue with its citizens, local organizations and private enterprises and adopt “a local Agenda 21”. Through consultation and consensus building, local authorities would learn from citizens and from local, civic, community, business and industrial organizations and acquire the information needed for formulating the best strategies. The process of consultation would increase household awareness of sustainable development issues. Local authority programmes, policies, laws and regulations to achieve Agenda 21 objectives would be assessed and modified based on local programmes adopted. Strategies could also be used in supporting proposals for local, national, regional and international funding.

([http://www.un.org/esa/dsd/agenda21/res\\_agenda21\\_28.shtml](http://www.un.org/esa/dsd/agenda21/res_agenda21_28.shtml))

incorporated the MDGs into various policies and programmes. At the federal level, for example, the Mid-Term Development Framework (MTDF) 2005–2010 and the Poverty Reduction Strategy Paper (PRSP) provide a policy framework for poverty reduction and the achievement of MDG commitments. The Balochistan Integrated Water Resource Management (IWRM) Policy incorporates the MDGs at the provincial level.

## National, provincial and district-level initiatives

Accepting the recommendations of the World Conservation Strategy (WCS), the Government of Pakistan (GoP) developed and approved, at the federal cabinet level, the Pakistan National Conservation Strategy (NCS) that had three primary objectives: (i) conservation of natural resources, (ii) sustainable development, and (iii) improved efficiency in the use and management of resources.

Seeing the usefulness of the consultative process of development, and that of the NCS itself, the Government of Balochistan (GoB) developed the Balochistan Conservation Strategy (BCS), with the technical assistance of IUCN, and approved the same in 2000 for implementation. The BCS aims at the well-being of the people and ecosystems in Balochistan. It provides a framework and a strategic plan for the protection of the environment, conservation and sustainable use of natural resources and sustainable development in the province of Balochistan.

## Pakistan in the 21st century: National Vision 2030

The emphasis of the National Vision 2030 is on:

**Economic Growth:** To build a nation whose development is measured by economic growth as well as the quality of life enjoyed by its people.

**Society:** To evolve into a tolerant and productive society which is at peace with itself and the outside world within a framework of sovereignty and security.

**Law:** To establish rule of law as a bedrock principle encompassing all spheres of life.

**Role of the State:** To encourage freedom of enterprise and innovation in the marketplace together with the state's responsibility for the provision of basic services to all citizens, including education, healthcare, water supply and sanitation, shelter, and security under law.

**Employment with special emphasis on women's rights:** To make employment and employability a central theme in economic and social policies, with special emphasis on the economic rights of women.

**Poverty Reduction:** To eliminate abject poverty and ensure social protection for the weak and the vulnerable in society.

**Education:** To generate, absorb knowledge and utilise technology for the good of all while promoting the social sciences/humanities as an essential branch of knowledge.

**Economic Stability:** To sustain an average growth of 7 to 8 per cent in the long term through effective investment and saving strategies while maintaining macroeconomic stability.

**Economy:** To take advantage of globalisation through enhanced competitiveness in a global economy relating to commerce, manufacturing and services, with increased diversity and quality of content.

**Brand Pakistan:** To facilitate the emergence of "Brand Pakistan", which will result in several large conglomerates becoming global players, and many more regional hubs and centres established in Pakistan.

**Governance:** To re-design the structures of the state and instruments of government in terms of citizens' participation, improved delivery of services and good governance.

**Demographic Transitions:** To maximise dividends from the demographic transition in the coming years, while avoiding its pitfalls.

**Energy<sup>6</sup>:** To manage the anticipated growing competition for access and ownership of resources and energy, both regionally and globally.

<sup>6</sup> Current per capita energy consumption is low (14 million BTUs as against 92 million BTUs for Malaysia). A target of 162,000 MW of power generation by 2030 is projected in the Energy Security Plan (2005) against the current supply of less than 18,000 MW.

**Climate Change:** To prepare for climate change and its likely unfavourable implications.

**Natural Resources:** To minimise wastage of natural resources as an important tool for preserving inter-generational equity.

**Urban Growth:** To prepare for the dynamics and imperatives of growth of large cities, urban concentrations and expected internal and international migration.

**Education and Employment:** To achieve significant breakthroughs in the sectors of education, employment and energy while consolidating and expanding, and gathering momentum in infrastructure and service sectors.

As the arena of action is mostly district, it is important that the IDDV contributes towards assessing the situation regarding these high objectives and in planning implementation of the national vision at the district level.

## Rationale for the Lasbela IDDV

Following the publication of the NCS, strategies for sustainable development were prepared by three of the country's provinces as well as two specially administered areas.<sup>7</sup> Since then, districts across the country have attempted to implement the broad principles and measures outlined in the provincial strategies by formulating more focused district-level integrated development 'visions' (ID DVs). The first to do so was Chitral, in the Khyber Pakhtunkhwa (KP) province, followed by other districts in KP as well as Balochistan and Sindh.<sup>8</sup> IUCN continues to play a role in assisting provincial and district governments in formulating these development plans.

The importance of district-level development planning has been recognised internationally, for example, in Agenda 21 (see Box 1).<sup>9</sup> In Pakistan the policy basis for the preparation of ID DVs comes in part from the provincial Local Government Ordinances (LGOs) of 2001 (now repealed), which introduced a

devolved system of local government. In the Balochistan Local Government Ordinance (BLGO), the Zila Nazim (head of the district government) was responsible for providing a "vision for the district-wise development, leadership and direction for efficient functioning of the District Government" (section 18(1)(a)). Similarly, the Zila Mushavirat Committee, a consultative body comprising the Nazims of all local government administrative units, was required to "to crystallise [a] vision for [the] integrated development of the district" (section 140(4)(a)).

Although the LGOs were repealed in 2010 and the devolution system disbanded, the need for a district-level framework development plan remains critical. The ID DV is an important planning tool, serving not only as a road map for sustainable development but also as a symbol of political commitment and a reflection of the will of the people.

## 2.2 The Vision

The Lasbela ID DV aims to contribute to the meaningful and sustainable development of the district, taking into account the needs and priorities of the people, as articulated by the people themselves. These include the following elements:

- Adequate and efficient provision of social services including safe drinking water, sanitation, health, education and energy.
- Planned, environmentally-friendly and sustainable housing, settlements and communications infrastructure.
- Sustainable agriculture comprising:
  - Low delta fruit orchards, vegetables and other ecologically suitable crops
  - Irrigation development and efficient water use for the expansion of agriculture.

<sup>7</sup> Balochistan, Khyber Pakhtunkhwa (KP, formerly known as the North-West Frontier Province) and Sindh have published sustainable development strategies, along with the Federally Administered Tribal Areas and the Northern Areas. The Punjab government is currently preparing its provincial sustainable development strategy.

<sup>8</sup> Abbottabad (2004), Chitral (2004) and Dera Ismail Khan (2007) in KP; Badin (2006) in Sindh; Gwadar (2007) and Qila Saifullah (2007) in Balochistan. Integrated development visions for the Balochistan districts of Lasbela, Mastung, Pishin and Ziarat are currently being prepared.

<sup>9</sup> It is worth noting that the process of ID DV formulation was launched in Abbottabad and Chitral before the LGOs were enacted.



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IDDV consultative process in progress

- Sustainably managed improved rangelands that support healthy livestock.
- Conservation and sustainable use of natural forests and farmland plantation to meet the need for wood and non-wood forest products as well as environmental services.
- Sustainable livelihoods based on improved agriculture, livestock rearing and range management, along with expanded mining, commerce, trade and transport.
- The development of micro, small and medium enterprise in a wide range of sectors including fruit and vegetable cultivation and marketing, poultry, animal fattening, milk production, wool processing and products, bee keeping, sericulture, handicrafts, automobile workshops and agricultural machinery, sale and repair of communication equipment, and waste recycling.
- Efficient and effective institutions with competent and service-oriented staff.

## Objectives

The objective of the IDDV is to plan, catalyse, promote, support and monitor sustainable development in Lasbela District. This includes:

- Conservation and sustainable use of natural resources
- Environmental sustainability
- Poverty reduction through sustainable livelihoods
- Human resource development
- Strengthening of the institutional framework
- Improving the quality of life of the people of the district
- Gender mainstreaming and the removal of gender disparities
- Improving access to information

To achieve these objectives, the following measures will be required:

- Strengthen the natural resource base, curbing and where possible reversing degradation, and promoting development that is sustainable.
- Develop and promote alternative and sustainable livelihoods aimed at poverty reduction, at the same time reducing the degradation of natural resources.
- Create an enabling environment for institutions, communities, the private sector, civil society organisations, academia and the media to participate fully in the development process.
- Learn from the experiences of community-based initiatives elsewhere in the country, which have been supported by civil society organisations.
- Avail the training and education facilities at the provincial and national levels to develop human resources.
- Focus on gender mainstreaming and eliminating gender disparities.
- Adapt to the changing globalised world while preserving positive cultural values, norms and traditions.
- Joint responsibility
- Long-term sustainability
- People- and environment-friendly development
- Integrated planning and management
- Gender mainstreaming.

## Principles

The following principles have been used to develop the IDDV and will be equally applicable during implementation:

- Consultation with and participation of communities and all other stakeholders

## 2.3 Methodology

Development of the Lasbela IDDV included broad-based consultations with stakeholders. The initiative was launched in Consultative Workshops at Uthal and Hub under the chair of the EDO Finance and Revenue and *Tehsil Nazim* (Hub) respectively. Twenty-four meetings, with 285 participants, were held with politicians, secretaries and senior officials from provincial government agencies, LIEDA, Lasbela CC&I, tribal elders, religious leaders, members of civil society organisations and academic institutions, and representatives from the media. These provided important information as well as direction. Essential contextual and statistical information was gathered through a survey of published and non-published materials as well as internet research.

The draft of the IDDV was circulated widely for comments and was discussed and debated in a Consultation Workshop held under the chair of the DCO at Uthal. The feedback, comments and suggestions from the Consultation have been incorporated in the document.

### 3. Governance and Institutions

**G**overnance covers the different aspects of relations between the state and civil society. It is the process through which societies or organisations make important decisions, determine whom they involve and how they make them accountable. Good governance is about both achieving desired results and achieving them in the right way. According to CIDA, governance means the manner in which power is exercised by governments in the management of social and economic resources. “Good” governance is the exercise of power by various levels of government that is effective, honest, equitable, transparent and accountable.



Generally, governance includes the development and working of policy, legal and institutional frameworks. Good governance leads to positive consequences, including trust, clear direction, positive inputs from stakeholders, good decisions, ability to withstand crises and financial stability. The concept and practice of governance of natural resource management (NRM) is emerging as a popular debate in many countries.

This debate enshrines many aspects including people, processes and structures in a range of circumstances. Hence, wider participation of all civil society segments is crucial.

Some key characteristics of good governance are given in Box 2.

The progress in sustainable development depends on flawless governance. The global principles, for successful application, may need some prioritisation for improvement in governance keeping in view the local conditions. The role of the Judiciary and media is critical to monitor weaknesses in governance. Civil societies can also play a vital role in identifying weaknesses and helping in improving transparency and accountability.

The government's ability to ensure law and order and provide services such as education and healthcare is vital for winning the trust of the public, and restoring links between citizens and the state. However, it is admitted that decades of mismanagement, political

**Box 2: Characteristics of good governance**

- Efficiency, discipline and accountability.
- Continuous monitoring and a system to address public grievances.
- Democratic control for police accountability. Protection of the police from extraneous pressures.
- Overseeing bodies at the district and provincial level to handle complaints and allied issues. These bodies, comprised of elected MNAs/MPAs and eminent persons from civil society, in addition to government officers, to provide policy guidance and redress complaints against them.
- Suo moto actions by the superior judiciary, writ jurisdiction of courts and checks on the working of trial courts.
- Continuous accountability, under an independent media regime.
- Change in the mind-set of public servants towards performing their duties and serving the public.
- Evolving institutional cooperation and coordination.

manipulation and corruption have rendered Pakistan's civil service incapable of providing effective governance and basic public services. The situation needs to be improved, and this forms a part of the IDDV.

Transforming the civil service into an effective, more flexible and responsive institution is required. There is also a need for modernising bureaucratic rules, procedures and structures and arranging training programmes for inculcating a spirit of public service among civil servants. Accountability of officials must be effective, impartial and transparent. Incentives for corruption could be reduced significantly with higher salaries and benefits, and better conditions of employment.

**3.1 Devolution**

It is critical to increase community involvement in activities that contribute to the social capital and provide a forum for all residents to participate in establishing and achieving the objectives of sustainable development of the district. The Devolution was the most significant change in the governance system towards achieving community participation. GoB enacted the Balochistan Local Government Ordinance (BLGO) 2001 and transferred some of the functions and powers of the provincial government to the local governments at district, tehsil/town and union council levels.

The devolved system of local government created under the BLGO had five main objectives; (i) devolution of political power, (ii) decentralisation of administrative authority, (iii) distribution of resources to the districts, (iv) de-concentration of management functions, and (v) diffusion of power and authority. The aim of the BLGO was to create a fully participatory, responsible and accountable local government system. This called for a rather fundamental change in governance with redistribution of economic resources and consequently social power.

The devolved system was supposed to use a proactive approach to involve people in development through CCBs as participatory development institutions for undertaking local community development initiatives. These could not be, however, formed or registered during the first term of the district government. Similarly, village and



The 813 km RCD Highway passes through Karachi, Bela, Khuzdar, Quetta and Chaman continuing into Afghanistan

neighbourhood councils, as grassroots participatory planning institutions, could not be formed in any district of the country<sup>10</sup>.

Under the devolved system of local governments, the district government used to be headed by the District *Nazim* and supported by the District Coordination Officer (DCO). The DCO's job was to coordinate the district level officers for coherent planning, synergistic development, and effective and efficient functioning of the district administration. His other function was to ensure that the official business in the district was managed in accordance with the laws and defined procedures. District Police Officers, EDOs of Revenue, C&W, PHE, Education, Health, Agriculture, Forests, Livestock and Community Development led their respective departments.

The Tehsil Officer, Infrastructure and Services (TO I&S) was responsible for water, sewerage, drainage, sanitation, LG roads, streets and streetlighting, fire-fighting and park services. The PHED was devolved partially, the provincial tier's responsibility being for projects of Rs. 5 million or more and of its

district office for projects of lower amounts. The coordination between the two PHED parts and their cooperation with the Tehsil Officer, Planning (TOP) remained weak. The latter was responsible for spatial planning and land-use control; building control; and coordination of development plans and projects with Union Council Administrations, Village Councils and other local governments.

The local government is a provincial subject under the Constitution but it was included in the Sixth Schedule of the Constitution forbidding the provinces from making any changes in the law without prior approval of the President of Pakistan. The status stands reversed after 31 December 2009 when the subject stood transferred to the provinces under the Constitution. The provinces are now free to devise their own policies for their local bodies. However, the federal government wishes to develop consensus among the provinces for a uniform system.

The devolved system could survive, against odds, for less than eight years. Major development projects in Quetta, even during devolution, were implemented by the federal

10 Asian Development Bank, Department for International Development and World Bank. *Devolution in Pakistan: An Assessment and Recommendation for Action*. Islamabad: ADB, DFID & WB, 2004, Page 24.

and provincial governments' agencies without the involvement of the district government. The district government departments were engaged in their routine activities and were sidelined in major developments taking place in the district.

The International Crisis Group (ICG)<sup>11</sup> (2010) analysed the structure and functioning of Pakistan's civil bureaucracy, identified critical flaws and suggested measures to make it more accountable and able to provide essential public services. According to ICG, "Devolution" of power led to an increase in administrative confusion and the breakdown of service delivery at the district level. It led to greater collusion between unscrupulous district officials and corrupt police. Low salaries, insecure tenure, and obsolete accountability mechanisms spawned widespread corruption and impunity. Recruitments, postings and promotions were increasingly made through other channels instead of being based on merit. It identified for Pakistan the issues of mismatched skills, undue political interference and lack of objectives or priorities during the period of devolution.

Prior to Devolution, projects were identified, selected and developed by the line departments at the provincial level. The local communities were neither consulted in planning nor involved in implementation. Participation of local communities in planning was the main purpose of Devolution. People suggested projects to their councillors, who approached the line departments and the district government for their funding.

The change in the governance system was very slow as the majority of stakeholders tried to maintain the status quo. The failure of the Devolution system had several reasons. It was not supported; rather impediments were created in devolution of administrative and financial powers, devolving the function-and-activities related budgets, and providing technical guidance and supervision to the devolved staff.

Management skills and professional or technical skills are of different nature. Generally, professionals were assigned to managerial positions, e.g., posting of teachers and doctors, who had no previous experience

in managing personnel, and allocating or utilising budgets, as EDOs or district officers of education and health, respectively. Management structure and functions were often mismatched. The government managers were not responding to the concerns of the representatives of the people.

The government managers faced the interference of politicians in district affairs constantly. Local government's allocation of budget to the social and natural resource sectors was very low and actually precluded the delivery of quality services and results respectively.

Few local governments had clearly stated objectives and priorities, which meant that the resource allocation process lacked direction, as did policy priorities of the provincial government. Fund allocation was conceived as a tool for political purposes for winning votes rather than to promote health-care and education sectors or to sustain natural resources sectors such as agriculture, forest and wildlife, and livestock and rangelands. No attempts were made to ensure that current budget allocations were sustainable as defined in the ADP. Financial management and procurement systems within district governments were bureaucratic and not transparent.

The councillors and *Nazims* were elected on a non-party basis but with active, behind the scene support from political parties, which created confusion in the minds of voters. A lack of basic qualification and necessary experience did not allow the elected representatives to perform as expected.

The *Nazims* and councillors prioritised the short-term developments, e.g., streetlights, pavement of streets, storm water and sewer drains, water supply, roads etc. even at the expense of the programmes and activities of the natural resources sectors. As a result, the budgets of agriculture, livestock, forest and wildlife departments were affected negatively and even their regular functions came to a standstill. They survived on the budget meant for projects funded by provincial or federal government or donors during the Devolution period, even for their regular maintenance works.

11 International Crisis Group. *Reforming Pakistan's Civil Service*. Asia Report # 185, 16 February 2010. Islamabad: ICG, 2010. Available <http://www.crisisgroup.org/~media/Files/asia/south-asia/pakistan/185%20Reforming%20Pakistans%20Civil%20Service.ashx>.

Though efforts were made to develop capacities of Nazims and councillors to run the business of the devolved local governments, the system lacked continued patronage and support of the provincial government. Even otherwise, any new system takes much longer, especially against odds, to show its usefulness and results. The devolved system changed the established system of authority and decision-making in the provincial and district governments. Obviously, ready acceptance could not be expected. Adoption and acceptance of the new system required continuous support, monitoring, adjustment and institutional strengthening, but this did not happen.

The tenure of local councils in the devolved system expired in October 2009, but there was no legal or constitutional recourse available with the provincial government to dissolve the then existing local councils. Therefore, the Provincial Assembly passed a bill on January 5, 2010 for the enabling powers to do so, which became a law on signing by the Governor. Through an Amendment Bill, a new Section 179-B was inserted in the Local Government Ordinance, 2001. This section empowers the provincial government to dissolve district, tehsil and union councils. As a result, all *Nazims*, *Naib Nazims* and other members of district, tehsil, town and union councils ceased to hold their respective offices and the Administrators replaced *Nazims* to look after the local governments at the various levels pending the elections, which may be held on a political-party basis during 2011.

According to the amended law, the government may from time to time issue directions to Administrators for performance of their functions or exercise of powers. The amendment drew criticism from *Nazims* and councillors and a one-day strike was observed in mid-January 2010 in Quetta and some other areas in Balochistan. Local governments were dissolved by the GoB on 19 March 2010 and Administrators replaced the *Nazims*.

However, now that the BLGO has been repealed, the district should aim for improving the governance and delivery of services to people with their participation under the new system of provincial-cum-local government administration.

### 3.1.1 Best practices resulting from devolution

The devolved governments in various districts, where the leadership was dynamic, developed best practices. Spatial planning, both rural and urban, comes under the purview of the tehsil administration. The experiences of some TMAs in the country are positive with regard to the use of the GIS facility and information management<sup>12</sup> in this regard. The replication and introduction of such practices in other districts is possible. Most of these are included as measures.

### 3.1.2 Status of key elements of governance and devolution

#### Policies and laws

The federal government makes policies and laws regarding the subjects on the Federal List, and the Concurrent List until the 18th Amendment of the Constitution of Pakistan. The provinces can make policies and laws of the subjects on the provincial and recently devolved Concurrent List. However, the provincial governments have been reluctant to make policies, even for the subjects in their jurisdiction.

There are a few exceptions, e.g., the Forest Policy (1999) and Forest Law (2002) of Khyber Pakhtunkhwa and the Forest Statement (1997) of Punjab. The provincial governments have, however, been legislating on the subjects in their jurisdiction and have been making operational policies on specific issues, e.g., installation of tube wells to guard against overexploitation of groundwater. The districts implement the policies, whatever they may be, but do not contribute at all in the making of policies and provincial laws, although they are meant for implementation at the district level. It is crucial that the district-specific guidelines are developed for effective implementation of federal and provincial policies in the district.

The NCS and BCS are policy and strategy documents regarding sustainable development for Pakistan and Balochistan respectively. These cover protection of the environment, conservation of natural resources, and socio-economic well-being of

12 TMA Jaranwala, Faisalabad District, 2006. Available [http://www.faisalabad.gov.pk/departments/tma\\_jaranwala.php](http://www.faisalabad.gov.pk/departments/tma_jaranwala.php).

the people. Similarly, the IDDV fills in the policy and strategy gap at the district level and is credible, having been developed through a consultative process. Policy formulation, law enactments, and IDDV developments are a major feat but their implementation remains a real challenge.

Legislative cover, in most aspects, is comprehensive in the country but its enforcement is generally very weak. Effective enforcement will help in implementation of the law-related aspects of the IDDV, e.g., pollution control; sustainable use of groundwater; environment-friendly mining, water, infrastructure and other developments; sustainable use of natural resources, workers' safety and occupational health in the mining sector.

### **Need for coordination**

Coordination is defined as “working cooperatively to more effectively apply the resources of several organisations for achieving targets of common interest.” Coordination among various levels of government, between line agencies and with other stakeholders including civil society organisations, private sector, academia and media is very weak at present. The government departments do not usually share resources and information with others. The vertical links are strong in the current hierarchical structure and horizontal links are missing. The coordination mechanisms instituted for specific purposes also fail to meet the objectives.

### **Need for planning at the district level**

Planning in Pakistan is centralised at the national and provincial levels. The Medium-Term Development Framework (MTDF) is a five-year plan for 2005-2010 prepared by the federal government. The provincial public sector programme is prepared by the line departments and is consolidated and approved by the provincial Planning and Development Department (P&DD). MNAs and MPAs also play an important role in defining priorities for the federal and provincial public sector development programmes regarding their respective districts. However, the District Development Working Party (DDWP) was the approval forum for PC-1s for projects implemented with funds allocated to the districts.

The planning did not devolve to the district level in the true sense even during the devolution period, which lasted from 2001 to 2009. Planning at the district level is at present very weak and short-term, often limited to a one-year period. As a result, medium-term and long-term priorities are lost as the horizon of thinking and planning is narrow. Generally, the sort of planning done at the district level is in a responsive way to utilise the allocated budget. The concepts of a long-term vision and sustainable development need to be introduced at the district level.

The current 5-Year Plan of the federal government was developed with input from the provincial governments and other stakeholders. However, it appears that the district governments were not able to participate in and provide input to this exercise traditionally as well as due to uncertainty of the system of local bodies.

### **Need to improve transparency and accountability**

Good governance and public accountability are vital for effectiveness of any management system but both are generally weak in the public sector, including at the district level. These aspects of governance improved to a certain extent during the Devolution period regarding the development works carried out through their elected councillors.

Good governance and public accountability need to move beyond rhetoric in the country, the province and the district. One of the objectives of the devolved local government system was to bring transparency and accountability. The BCS had emphasised devolution of power for accountability and this was enshrined in the devolved system of local governments. Providing information to the masses about development plans, programmes, projects, funding, implementation methodology, process, schedules, monitoring mechanisms and how they can participate or contribute can be an important step forward for transparency and public accountability.

The provision of non-intrusive monitoring of government departments in the BLGO by the peoples' representatives-led monitoring committees was a useful instrument for accountability but it was not used. The office of the District Ombudsman provided in the

BLGO was another measure in the same direction but it was not set up in Quetta District, as in other districts. The district government needs to take steps to ensure accountability and transparency in the functioning of line departments, TMAs, etc.

The BLGO made provision for several house committees responsible for ensuring good governance and accountability of the district government. The functioning of these legally mandated committees, especially the *Mushavirat* Committee and Monitoring Committees, was necessary to ensure transparency and accountability of the district government. The District Council formed these committees but these remained dormant.

### Need for information management

Information Management for the district administration refers to the effective collection, storage, access, use and dissemination of information to support government functions of policy-making, planning and meeting the information needs of the public, stakeholders and other users. Information management is weak in the public sector at all levels generally and at the district and lower levels in particular. Inconsistencies in the available data are common as well as in the data and situation on the ground, partly due to lack of updating of data. There are wide gaps in district-related information needed for planning and management for their own needs and for sharing with other departments and stakeholders.

A system is needed for information-need identification, collection, classification, documentation and its presentation on an annual basis in the sector departments or centrally in the province, or in any district. Management Information Systems were, however, established in the Education and Health Departments at the provincial and district levels and are functioning well. Information is used generally as a tool for holding power and is not shared readily.

Poor information management is the greatest hurdle in situation analysis and development planning. There is a need for capacity building of line departments in collection and management, and use and presentation of reliable data about their assets, services and sectors.

### Need for improved research and development

Innovative approaches and research are required to catch up with the contemporary global society of the 21st century. Organisations and researchers around the world have been creative in working with communities living in situations of fragility and remoteness to find solutions to ensure delivery of basic services, improve governance and create opportunities of livelihoods.

Innovation that utilises cutting-edge technologies and communication tools can help in improving service delivery or improving citizen-government relationships through enhanced transparency and accountability. The delivery of basic social services (e.g., in the health and education sectors) and governance and accountability (e.g., budget oversight and expenditure tracking) can be improved with the use of communication tools. Innovative research and practical approaches for preventing violence and reducing incentives for crime are also required.

It is important to identify high-impact approaches, and innovative solutions and models that were tested and have potential for scale up, and experiences of other places for benefitting, establishing collaboration, and forging longer-term partnerships. Researchers in universities and research organisations within and outside Balochistan and Pakistan should be encouraged to conduct research to provide effective responses to the local situations in Quetta District and Balochistan. Proposals should present practical solutions in the short run to address the root causes of issues and long-term development needs, which is a lasting route to achieving the welfare of people, and their peace and security.

## 3.2 Current status of governance and institutions

Lasbela is one of two coastal districts in the Balochistan Province. It was accorded the status of a separate district in the Kalat Division on 30 June 1954.

Lasbela and Awaran Districts have a joint constituency in the National Assembly (NA

206 Lasbela-cum Awaran). It has two constituencies in the Provincial Assembly: PB-44 Lasbela-I and PB-45 Lasbela-II.

For administrative purposes, Lasbela District is structured into sub-divisions, tehsils and sub-tehsils. The Bela Sub-division comprises of Bela, Uthal, and Lakhra Tehsils and the Liari Sub-tehsil. Hub Sub-division includes Hub and Sonmiani (at Windar) Tehsils and Gadani Sub-tehsil. Dureji and Kanraj have the status both of Sub-divisions and Tehsils. There are 21 (14 rural and 7 urban) union councils in the district, and their elected representatives have formed the Zila, Tehsil and Town Councils.

The local government set up at the Tehsil level during the devolved system comprised of 5 Tehsil Municipal Administrations (TMAs) at Uthal, Bela, Gadani, Hub and Dureji; and 22 Union Municipal Administrations (UMAs): Windar, Sonmiani, Kanraj, Gadani, Hubco, Allah Abad, Berot, Patara, Sakaran, Lohi, Dureji, Uthal, Kahwari, Wara, Lakhara, Lahari, Shah, Bela City, Kathore, Wellpat (South), Wellpat (North), and Gador.

There are nine police stations with the following total strength: DPO (1), DSP/ASPs (2), Inspectors (4), Sub Inspectors (10), ASIs (23), Head Constables (92) and Constables (467).

The district head during the devolved system was the Zila Nazim, supported by the District Coordination Officer (DCO). Since reversal of the system to pre-devolution status in January 2010, the DCO is now head of the district administration. He plays a number of roles including District Magistrate, Collector, Revenue, and Coordinator of the functions of all nation-building departments at the district level for administrative purposes. The DCO is also generally the ex-officio head of the various committees and forums in the district.

Maintenance of law and order is categorised into areas “A” and “B”. Areas under Category “A” are urban areas and are managed by the police department. These include Hub, Bela and Uthal. Areas under Category “B” are rural areas and are managed by levies<sup>13</sup> under the supervision of the Assistant Commissioners and Tehsildars. Levies have generally been effective at maintaining law and order in the



A glimpse of Bela town

© IUCN, Nadeem Mirbahar

remote rural areas. In the devolved system, law and order was supervised by the Superintendent of Police (SP), with a minimal role played by the Zila Nazim and the DCO.

The overall security situation in the district is satisfactory, although Hub Town is vulnerable to disturbance due to its large population and incidents of ethnic conflict. The crime rate has been increasing slowly as a result of increase in population, poverty, and the disintegration of traditional governance systems. Civil and *Qazi* courts administer Justice.

District courts are functioning at Uthal and Tehsil courts at Hub.

Generally, the district level officers who are based in Uthal Town head the departments. Some others are located in Hub Town such as the Executive Engineer of the Public Health Engineering Department (PHED).

The tenure of local councils in the devolved system expired in October 2009, but there was no legal or constitutional recourse available with the provincial government to dissolve the then existing local councils. Therefore, the Provincial Assembly passed a bill on January 5 to enable the provincial governments to have this power. As a result of the amendment bill, Section 179-B was inserted in the Local Government Ordinance and subsequently, all Nazims, Naib Nazims and other members of district, tehsil, town and union councils ceased to hold their respective offices.

According to the amended law, the government may from time to time issue directions to administrators regarding performance of their functions or exercise of their power. The previously mentioned amendment drew criticism from Nazims and councillors and a one-day strike was observed in January 2010 in Quetta and other towns in Balochistan.

The GoB has appointed Administrators to look after the local governments at various levels prior to the elections. Two notifications were issued, one for dissolution of local councils and the other for appointment of administrators to reduce the administrative vacuum in the municipal services.

### Key Issues

- Lack of provincial sectoral and cross-sectoral thematic policies, priority

statements, programme frameworks, targets, etc.

- Weak intra- and inter-agency and stakeholder coordination.
- Lack of transparency and accountability.
- Lack of Information collection, management and dissemination.
- Lack of support for Research and Development (R&D).
- Low revenue generation and subsequent dependence on external resources.
- Few departments have clear statements of objectives, priorities or programmes, as a result of which the resource allocation process, as well as the policy and programme priorities of the provincial government lack direction.
- While politicians provide oversight to the public sector agencies to assess their efficiency, effectiveness and delivery, their negative interference in administrative matters adversely impacts their effective functioning.
- Financial management and procurement systems are bureaucratic and lack transparency.
- Fund allocation is done for political purposes to win votes rather than to promote progress in social sectors, especially WatSan, health and education, and natural resource-dependent sustainable livelihoods. Budget allocations fluctuate significantly and are not sustainable, and in fact preclude the delivery of quality services and targets.

### Measures

1. A Citizens' Committee will be established at the district level to provide support to the police and hold them accountable.
2. A system will be established to monitor and address public grievances.

3. There will be positive responses to *suo moto* actions by the superior judiciary, writ jurisdiction of courts and checks of trial courts.
4. The media will be provided support for on-going accountability.
5. Public sector agencies will be strengthened and the competence of their staff will be developed.
6. A central information system will be established at the district level with nodes to the departments.
7. Intra- and inter-agency and stakeholder coordination will be improved.
8. Efficiency, effectiveness, service delivery, transparency and accountability will be improved.
9. Accountability of service providers will be enhanced, and end-users of service delivery will play a formal role through the involvement of local communities in the management of facilities.
10. The following incentives will be provided to reduce corruption:
  - Higher salaries and benefits, and improved conditions of employment
  - Information sharing regarding public sector programmes, projects, roles and responsibilities of public sector agencies and their staff as well as procedures
  - Establish a one-window operation and complaint redressing system to improve transparency and accountability
  - Include stakeholders in departmental committees and forums
  - Encourage and support senior officers to be role models with their efficiency, conduct, transparency and accountability
  - Discourage negative political interference, which negatively affects merit, efficiency and staff conduct, encourages favouritism and nepotism, and supports corruption.

## 4. Social Development

**E**ducation rates in Balochistan are lower than in the rest of the country, including in Lasbela District. Less priority is placed on girls' education and girls are often made to drop out of school to assist with domestic chores, including looking after younger siblings. Schools, similar to the healthcare facilities, are often short staffed, with many teachers remaining absent for long periods, since there is no retribution for absenteeism. They may also be located far away from homes, resulting in children whose families cannot provide transport for them being unable to attend.



The population is widely scattered in small settlements, with difficult access to towns and medical facilities. This presents a problem for both provision and supervision of primary healthcare facilities in rural areas.

In Balochistan it is almost impossible for women to exercise their legal and social rights due to prohibitive local customs and practices. They have a very limited role in decision-making and their rights are generally contravened, rather than recognised. Generally, women are denied their right of inheritance to property, in violation of Pakistani law that grants them this fundamental right.

They are rarely allowed to own productive assets such as land or livestock and generally have no control over their income from labour. Literacy rates for women are low due to socio-cultural norms that do not support girls' mobility or education, although in the urban areas parents are increasingly taking an interest in their daughters' education. Medical facilities for women are also limited and many women visit *pirs* (spiritual leaders), *maulvies* (religious leaders) and quacks rather than doctors or paramedics for medical treatment, and depend on *dais* (traditional birth attendants or TBAs) for delivery of babies.

## Social Change

Social change is inevitable in any society and Lasbela District is no exception. Positive changes include awareness due to less isolation and improvement in mobility, and greater emphasis on health, education and drinking water.

Most of the social change in the district appears to be negative. Community management and control against over exploitation of natural resources via forests, rangelands, fisheries, water has been weakening. The size of the land holdings has been decreasing due to mutation of land based on inheritance. The number of housing units and area under settlements has been increasing with the increase in population, which puts more pressure on limited resources. The undesirable habit of chewing betel leaves and nuts and *Gutka* has cropped in, especially in the coastal and urban population, affecting the health of the people and sanitation. *Bidi* smoking is also common in fishermen.

The strategy to overcome resentment and alienation of local population would involve:

Preparing and implementing a programme for recruitment of local people in Pakistan Coast Guards and other civilian armed forces and security agencies, sooner than later;

Establishing Citizens Committee at the district level to monitor and guide the security situation in the district;

Developing a mechanism to ensure effective representation of local people in all offices;

Skill development and hiring of local labour by industries, mining and commerce companies, contractors and monitoring by the government for strict compliance of the law of minimum wages.

## Measures

1. Participation of people remains a crucial need in any local government system to improve governance for effective delivery of services. A mixed system of provincial-cum-local government administration will be evolved in the scenario of reversal to a provincially-led governance system.
2. The government and civil society organizations will raise awareness of communities regarding the need to elect honest and capable heads and councillors of local bodies. Capacity of future heads and councillors of local bodies will be developed.
3. Transparency and accountability in the working of local bodies will be incorporated and implemented.
4. The government functionaries will cooperate with and involve the heads and councillors of local bodies in planning and decision-making.
5. Federal and Provincial governments will involve the local governments in policy and law making, and the local government at the district level should participate proactively in such developments.

## 4.1 Education

The vision of the sector is to ensure education and skill development for all, and to develop the people of Lasbela District into an educated society that meets most requirements of the district for human resources for its development; conserves and sustainably uses its natural resources; and protects its environment to improve the quality of life of the people.

Pakistan's budget for education has never

**Table 1a: Number of Schools, Enrolment and Teaching Staff in District Lasbela (2004-05 to 2007-08)**

Financial Year	Sex	Primary Schools			Middle Schools		
		Number of schools	Enrolment	Teaching Staff	Number of schools	Enrolment	Teaching Staff
2004-2005	Male	366	11450	566	32	3948	362
	Female	127	8944	200	6	972	67
2005-2006	Male	367	11833	569	32	4064	370
	Female	130	9647	201	7	1368	70
2006-2007	Male	366	12222	561	33	4557	378
	Female	125	8908	191	11	2212	130
2007-2008	Male	366	12359	565	33	5163	378
	Female	125	8428	193	11	2840	130

Source: BEMIS, 2008

**Table 1b: Number of Schools, Enrolment and Teaching Staff in District Lasbela (2004-05 to 2007-08)**

Financial Year	Sex	High Schools			Intermediate Colleges	
		Number of schools	Enrolment	Teaching Staff	No. of Intermediate colleges	Teaching Staff
2004-2005	Male	16	6557	359	1	8
	Female	4	3029	95	0	0
2005-2006	Male	17	6486	371	1	10
	Female	4	2985	95	1	0
2006-2007	Male	18	6778	395	1	15
	Female	4	2863	95	1	10
2007-2008	Male	18	7547	395	1	16
	Female	4	2216	95	1	10

Source: BEMIS, 2008

exceeded 2 per cent of GNP<sup>14</sup>. According to the latest Pakistan Labour Force Survey 2009-10, the overall literacy rate (age 10 years and above) is 58 percent (70 percent for males and 45 percent for females)<sup>15</sup> which is lower in Balochistan Province and Lasbela District, at 27 per cent<sup>16</sup> (1998) and 22<sup>17</sup> per cent (1998) respectively.

There is a high dropout rate because of poverty. Parents engage their children in subsistence or income earning activities and such children generally begin school later than

other children of the same age. Consequently, their adjustment in school becomes difficult. Lack of parental attention to their children's education also has an adverse impact. Generally, teachers in rural areas are untrained and underpaid, and lack incentives to motivate children's interest in education. Boys are considered assets for the family, since they can be sent to work and earn an income, while girls are considered liabilities; therefore, girls' education is given little importance. There is also a higher dropout rate for girls in rural areas since they are required to assist

15 Government of Pakistan. Ministry of Planning and Development. *Pakistan Economic Survey 2010-11*. Islamabad: GoP, 2011.

16 Government of Balochistan. Planning and Development Department. Bureau of Statistics. *Development Statistics of Balochistan 2009*. Quetta: GoB, 2009.

17 Government of Pakistan. Population Census Organisation. *District Census Report (1998) Lasbela*. Islamabad: PCO, Statistics Division, GoP, 2001.

with domestic chores or are constrained by societal restrictions.

The Education Department of the provincial government is primarily responsible for the education system. Private sector involvement is low but the involvement of international donors has been helpful in creating an enabling environment in rural areas, especially for primary education and girls' education .

Overall, the literacy rate in the district is 22 per cent (32 per cent male, 10 per cent female). Urban literacy is 35 per cent (46 per cent male, 20 per cent female) and rural literacy is 15 per cent (24 per cent male and 5 per cent female).<sup>18</sup> The number of schools and intermediate colleges in District Lasbela and their enrolment and number of teaching staff in 2004-5 to 2007-2008 is given in Tables 1a and 1b.

There are 417 boys' schools, 140 girls' schools, one male and one female intermediate college (BEMIS 2007-08). There is also one degree college and a university in the district. In addition, there is one private school with total enrolment of 91 (25 boys, 66 girls) and a teaching staff of six (two male and four female teachers).

## Key issues

- Public sector education services in the district are weak and inadequately organised, managed and monitored, resulting in:
  - A shortage of schools, colleges and teachers
  - Defunct schools
  - Low level of school enrolment, especially girls' enrolment.
- Schools are unplanned and appointments, postings and transfers of teachers are not based on merit or performance. Many posts remain vacant and many teachers, especially those posted in remote rural areas and female teachers, do not attend their duties regularly. There are single-teacher primary schools which are forced to remain shut when the teacher is absent.
- Classrooms in schools in urban areas are often overcrowded, since there are few schools, with an even smaller



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Children at G.G.P.S government primary school, Mureadani Goth, Bela

number of schools for girls than for boys. Many children, especially in the rural areas, cannot attend school because it is far from home and there is no public transport.

- There is a higher dropout rate amongst girls especially after primary school since middle and high schools are even further away.
- There is a dearth of appropriately trained teachers.
- Many schools do not have adequate, safe buildings and those that exist are in dilapidated condition.
- No boarding facilities are available for non-local students in middle and high school.
- Water, toilet facilities and boundary walls are lacking in many girls' schools, which pose a considerable hindrance in girls' being able to attend school.
- There is a lack of equipment, furniture and teaching materials, which demotivates both teachers and students.
- Monitoring, support and facilitation by senior staff, and adherence to regulations and procedures, is weak or non-existent.
- The District Education Plan has not been developed.
- BEMIS is an excellent facility but its potential for planning and management is not being fully utilized.
- There is very little data regarding private educational institutions in urban areas, since according to the data available there is only one private school in the whole district.
- Funding is often restricted to activities specified by the government or donors who allocate funds without taking into account the actual requirements at the district level, and without allowing for flexibility for other uses.

## Measures

1. The standard of education will be improved, accessibility to education for all people will increase, particularly in the rural areas and vocational and technical education will be provided.
2. Areas for vocational training for developing human resources through a crash programme as short- and medium-term solutions will be identified.
3. Local CBOs/CCBs will be activated and supported for repairing school buildings with community participation.
4. Staff performance and absenteeism will be monitored.
5. Inspectors and assistant education officers (AEOs) will conduct regular monitoring visits and annual school inspections to assess absenteeism and teaching standards.
6. The EDO Education will develop simple benchmarking tools and guidelines to assess school performance in key areas. This will provide valuable information for service providers and managers as well.
7. A District Education Plan for regular and technical education will be developed and implemented.
8. Provincial and federal government and donor support will be sought for implementing the Plan, and an enabling environment with incentives for the private sector to collaborate in providing vocational, technical and professional education and training facilities in the district will be created.
9. The number of schools and trained teachers will increase.
10. Incentives will be provided to parents, teachers and students to improve access to quality education.
11. A mass awareness campaign will be implemented so that all tiers of local government, CSOs, CBOs, and CCBs raise awareness among communities about the importance of education and the need to enrol all boys and girls of school going age; enrolment in schools

will increase with the help of the ESRA component on PTMC for community mobilisation; and enrolment of girls in boys' primary schools where girls' schools are not provided will be encouraged.

12. Performance appraisal systems will be developed to shift the focus of school and health unit inspections towards providing technical skills. Inspectors will provide service providers with solutions to problems on the spot, which will help inspectors to follow up on inspections and allow tracking of progress.
13. The district administration will monitor quality and provision of education at the district level and provide feedback to the education department at the provincial level.
14. Quality, cost-effective new primary school buildings may be constructed on the pattern of the Khairpur model (Box 3), as opposed to the current practice in Lasbela, in which the cost of construction of school buildings by government agencies is very high.
15. A culture of zero-tolerance for staff absenteeism in government institutions will be inculcated, with high-level political backing.

**Box 3: Khairpur Experience of Cost Effective Construction of School Buildings**

The Khairpur district government constructs cheaper and higher quality schools through local councils. Construction cost estimates of government agencies are based on a composite schedule of rates. On the other hand, local councils procure materials and construction labour based on actual rates in the market. For example, Khairpur government agencies constructed a primary school building for Rs.0.78 million. The Khairpur local councils brought down the construction cost for similar buildings to Rs. 0.2-Rs. 0.25 million. The Khairpur district government experiment in school construction confirms international findings of similar programmes that: the schools are well constructed; costs are remarkably lower; and completion time is much shorter. By following the example of Khairpur local councils the Lasbela district government can construct a large number of schools with available funds.

16. Key education indicators for five-yearly review of progress will be incorporated such as:

- Net Primary Enrolment Ratio ( per cent)
- Net Secondary Enrolment Ratio ( per cent)
- Youth Literacy rate per cent (age 15-24)
- Public Expenditure on Education as percentage of GDP

**4.2 Health**

The vision of public health in the district is improved health of the population and increased life expectancy; decreased infant, child and maternal mortality rates in line with MDGs 4, 5 and 6 targets. Essential indicators for organising, managing and supporting health services will include life expectancy at birth (in years), infant mortality rate per 1,000 live births, percentage of population with sustainable access to improved sanitation and an improved water source, and public health expenditure as a percentage of GDP.

It is the joint responsibility of the State, employers, families and individuals to ensure that they live a healthy life. Ill health reduces efficiency, potential, productivity, income and happiness, incurs a financial burden and adds to poverty. "Some years ago, issues like air pollution, exposure to hazardous chemicals and heavy metals, contaminated food and water, sustainable urban transport, road safety, and the contribution of the environment to changing lifestyles were considered luxury items on the political agendas of developing countries. Not anymore," said Dr. Margaret Chan, WHO Director-General, at the launch of the WHO/UNDP first global project on public health adaptation to climate change in 2010.

According to the HMIS (2006-2007), the district had a 20-bed hospital, two RHCs of 30 beds, eight dispensaries, 2 RHCs, 14 BHUs, two MCHs, and one T.B. Clinic in 2006-2007<sup>19</sup>. During this period, these facilities handled over 1.5 million cases. The type and number of health staff in Lasbela District is shown in Table 2.

**Table 2: Health Staff in Lasbela District (2006-07)**

Male Doctors	Female Doctors	Male Nurses	Female Nurses	Pharmacist	Drug Inspector	Health Education Officer	LHVs Mid-wives	Dais/
37	6	1	3	1	1	-	17	35

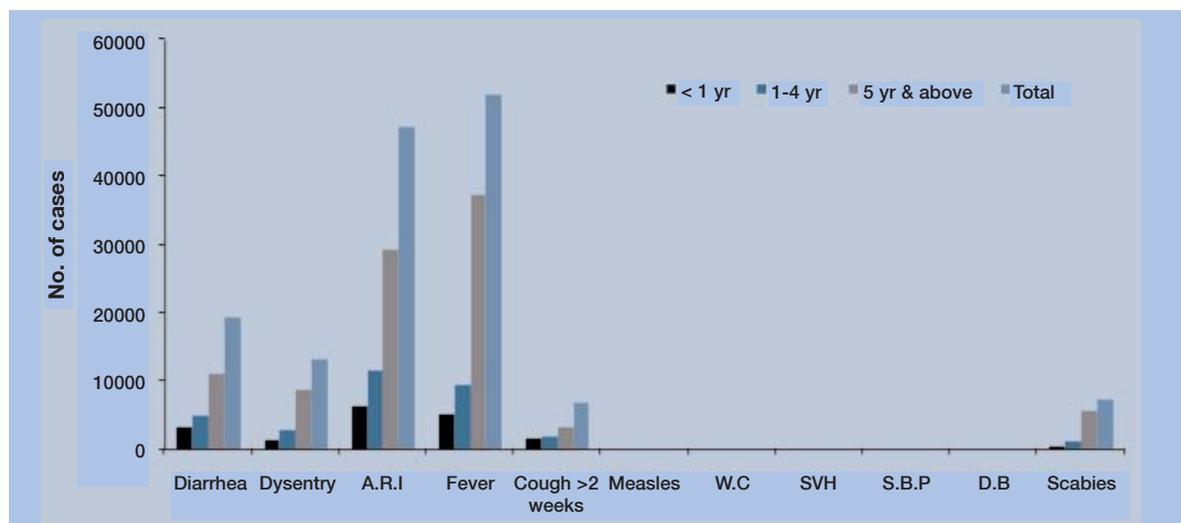
Source: HMIS, Office of the Directorate General of Health, Balochistan, at Quetta

3,066 blood slides were examined for malaria during 2007 and 428 malaria cases were detected and treated.

Suspected cholera, meningococcal meningitis, poliomyelitis, measles, neonatal tetanus, diphtheria, whooping cough, goitre, viral hepatitis, and AIDS are priority diseases but there is no data available. The locals prefer to use tertiary level health facilities in Karachi City, despite the higher cost of healthcare. Cases reported regarding priority diseases in Lasbela District are given in Figure 1.

### Key Issues

- Weak healthcare infrastructure.
- Widely scattered population in small settlements with difficult access to towns and medical facilities, presenting a problem for provision and supervision of primary health care facilities in rural areas.
- A large number of medical staff positions in the district are vacant.
- Health facilities for women are scarce.
- Government health practitioners are poorly paid compared to the private sector.
- Very few funds are allocated for operations, maintenance and medical supplies for health centres and health workers.
- No support is provided to health workers; staff rarely receive adequate professional support from their line managers.
- Medical staff at government health facilities has little or no say in the allocation of the medicine supply budget, and, as a result, units run short of required medicines, while receiving medicines they may not need. Delays in procurement also result in irregular supply of drugs.
- Some health staff are difficult and uncooperative with poor patients.

**Figure 1: Priority Diseases in Lasbela District during 2007**

Source: Balochistan Health Management Information System

- A culture of absenteeism, which pervades government health facilities, especially in rural areas.
- Unwillingness of health staff and doctors, especially females, to work in remote areas, compounded by lack of accommodation and inability to reverse remote area transfers, which contributes to absenteeism.
- No good schools for children of health staff, and no facilities for private practice in case of remotely appointed doctors.
- Insufficient medicines and equipment for emergencies.
- Lack of appropriate sanitation facilities in healthcare centres including for unmanaged hospital waste.
- Recurrent patterns of disease, due largely to lack of preventive healthcare as well as inadequate solid waste management and the absence of a sewerage system.
- Supply of untreated drinking water from dead storage through a conveyance system comprising of old pipelines, resulting in a prevalence of water borne and infectious diseases including Hepatitis.
- Lack of awareness of HIV/AIDS amongst a majority of the population, resulting in cases remaining unreported.
- Chewing of betel nut and consumption of *Gutka* (an addictive preparation of narcotic drug and toxic substances, known for causing mouth ulcers and mouth cancer), especially in urban and coastal areas of the district. Reportedly, colours and chemicals used for processing of hides are also used for preparation of *gutka* in Lasbela Town. There is no restriction on the sale of *gutka* in the district, and *gutka* is brought from Karachi as well.

### Measures

1. An awareness campaign will be implemented to promote understanding of the link between a healthy environment and a healthy population.
2. Coordination among departments and agencies dealing with various aspects of health will be improved.



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3. Four-wheel drive ambulances in hospitals and BHUs for transportation of patients from villages to hospital at short notice will be made available.
4. The senior health administration in the district and province will manage the health staff, in particular doctors, transparently and actively, and help them to resolve the problem of absenteeism.
5. Simple benchmarking tools and guidelines will be developed by the Health Department to assess health centre performance in key areas; this will provide valuable information for service providers and managers as well.
6. Comprehensive legislation and regulations covering all factors contributing to environmental health will be developed and enforced.
7. Emphasis will be placed on primary and preventive health care.
8. Appropriate medical staff will be appointed on all vacant seats.
9. Awareness campaigns on health-related environmental issues, preventive measures, infectious and communicable diseases, combating social evils, and changing undesirable attitudes and habits such as the use of betel nut and *gutka*, and excessive tea drinking will be implemented.
10. A legal ban on sale and use of *Gutka* will be imposed.
11. An enabling environment will be created and incentives will be granted to the private sector for providing affordable health care, especially tertiary health care. Effective mechanisms to monitor quality and ensure reasonable pricing will be implemented.
12. Performance appraisal systems will be developed to shift the focus of health unit inspections away from finding faults, towards providing technical support. Those carrying out inspections should be able to agree with service providers on

problems faced and actions needed to improve service delivery on the spot, rather than taking time to respond. This will also help inspectors to follow up on inspections and allow tracking of progress.

## 4.3 Population

The population of Lasbela District in 1998 was 312,695 persons (density 21 per sq. km.), with an annual growth rate of 1 per cent for the period 1981-1998.<sup>21</sup> The National Institute of Population Studies (NIPS), Islamabad, has estimated the projected population at 422,000 and 511,000 in the years 2011 and 2021 respectively. There is large migration to the district because of its cultivation potential due to fertile soil, availability of irrigation water, and other opportunities for employment including industry, mining, poultry, commerce and trade and transport.

Most of the native population is rural and tribal. All tribes other than Baloch, Brahvi, Med, Khoja and Hindus settled in Lasbela are known as *Lasi*. The five principal Lasi tribes, collectively known as *Panraj*, a sort of tribal confederation, are the Jamot, Roonjhas, Sheikh, Angaria and the Burra. Under each 'raj' are a large number of minor heterogeneous groups, such as the Gunjas, Sinars, Sangurs, Burfast, Chhuttas, Khojas, Khaskheli, Baradia, Moondra, Doda, Gujar, Brahvi, Baloch, Bandicha, Missan, Achra, Wahora, Mandra, Gador, Sabra, Wachani and Bakhra. The Meds are fishermen who live along the coast, mainly at Miani and Sonmiani. The Hindus of the district are Arora by caste. Sindhi (Lasi), Balochi and Brahvi languages are spoken in the district.

The people are predominantly dependent on agriculture, livestock and fisheries. The other main sources of income are industrial and mining labour, business, and poultry farming. The Hindus are mainly traders, and some of them have acquired land, by purchase or mortgage, which is cultivated by tenants.

### Key Issues

- Rapid migration to the district may result in depletion of resources.

<sup>21</sup> Government of Pakistan. Population Census Organisation. *District Census Report (1998) Lasbela*. Islamabad: PCO, Statistics Division, GoP, 2001.

- Health and education facilities are already scarce. If these do not improve, the increased migration to the district will result in a greater population that is uneducated and lacking in access to healthcare.

### Measures

- Population growth will be managed to ensure that the area's natural resources do not deplete fast.

## 4.4 Gender Mainstreaming

According to the Constitution of Pakistan, all citizens have equal rights. The Constitution authorises the State to make special provisions for the protection of women and children's rights and labour laws ensure full participation of women in all socio-economic sectors of life. The law allows women the right to vote and to hold office. They also have reserved seats in the National and Provincial Assemblies and local bodies. The Protection Against Harassment of Women at the Workplace Bill (2009) was signed by the President of Pakistan on 29 January 2010. The Bill mandates enhanced punishment of up to three years' imprisonment, with a fine of up to Rs 500,000. It also proposes penalties for convicted offenders, such as demotion, compulsory retirement and dismissal from service. This law is seen as a major step forward to protect women from harassment and help them feel more secure although the test of its effectiveness and impact will be seen once it is implemented.

The Benazir Income Support Programme and the Smart Card launched by the government are aimed at empowering women and eradicating poverty. However, it remains to be seen whether these programmes will reach all the women who deserve to benefit from them.

### Key Issues

- Constitutional guarantees of equality are rarely safeguarded. In Balochistan it is almost impossible for women to exercise their legal and social rights due to prohibitive local customs and practices. As in other districts of the province, women in District Lasbela have an extremely very limited role in decision-making and their rights are

generally contravened, rather than recognised.

- The social structure is patriarchal and almost all community, political, religious and social leaders are men. Generally, women's' right of inheritance (property) is denied, in violation of Pakistani law that grants them this fundamental right. Women are rarely allowed to own productive assets such as land or livestock and generally, have no control over their income from labour. Their economic contribution is excluded in most official statistics.
- The literacy rate among women is low due to socio-cultural norms that do not support girls' mobility or education, although in the urban areas parents are increasingly taking an interest in their daughters' education. The number of girl students has been increasing since 2005.
- Medical facilities for women in the area are limited; only three lady-doctors serve at the District Headquarters Hospital at Hub. Many Women visit *pirs* (spiritual leaders), *maulvies* (religious leaders) and quacks rather than doctors or paramedics for medical treatment and depend on *dais* (traditional birth attendants or TBAs) for delivery of babies.
- Generally, women observe the veil (*purdah*), but in the rural areas, poor women work in the fields unveiled. Cases of violence against women are neither reported nor do women lodge complaints or seek any legal remedy.
- A few NGOs work on gender issues but almost all of these are led by men and none of them focus on enhancing women's participation in social and political arenas.

### Measures

- The Protection Against Harassment of Women at Workplace Bill 2009 was signed by the President of Pakistan on 29 January 2010. The Bill envisages enhanced punishment increased to three



Local women attending Education for Sustainable Development workshop

- years imprisonment with a fine of up to Rs 500,000. It also proposes penalties, such as demotion, compulsory retirement and dismissal from service for offenders. This law is seen as a major step forward to protect women from harassment and help them feel more secure although the test of its effectiveness and impact will be seen once implemented.
2. The Women's Protection Bill which was passed by the National Assembly of Pakistan on 15 November 2006 is an attempt to amend the heavily criticized Hudood Ordinances, 1979, which governed punishment for rape and adultery in Pakistan. The new Women's Protection Bill brings rape under the Pakistan Penal Code, which is based on civil law, rather than on Sharia (Islamic law). The Bill removes the right of police to detain people suspected of having sex outside of marriage, instead requiring a formal accusation in court. Under the changes, adultery and non-marital consensual sex is still an offence but judges can now try rape cases in criminal rather than Islamic courts. The Bill also does away with the need for the four Male Muslim adult eye witnesses that were required by the Hudood Ordinances and allows convictions to be made based on forensic and circumstantial evidence.
  3. Girls' participation in education through community support for girls' enrolment will be expanded.
  4. Achieving the targets of MDGs 2 and 3 on enhancing female literacy will be made a priority.
  5. Women will be integrated in the development process through opportunities to participate in and form CCBs and develop projects for women's development.
  6. Women's skills will be enhanced through special training programmes aimed at providing income opportunities.
  7. Women will be involved in the implementation of resource management (fruit and forest nurseries, kitchen gardening, and environmental programmes).
  8. Scholarships will be provided to women for higher education in universities and professional colleges.

9. Women will be encouraged to take on new roles in productive sectors such as in poultry and livestock, fish processing, drinking water conservation and protection against pollution; and their access to training in these skills will be ensured.
10. More opportunities for women's participation in government and civil society organizations will be created.
11. High school education facilities for girls in large villages will be provided and adequate boarding houses in girls' high schools in all tehsil towns of the district will be established.
12. A Degree College for girls will be established in the district with adequate boarding facilities.

## 4.5 Human Resources

According to the Population Census 1998, the total labour force in district Lasbela was 27 per cent (50 per cent male and 1 per cent female). Most of the working population, i.e. 44 per cent, was engaged mainly in agriculture and fisheries with 60 per cent of total employed workers (60 per cent males and 67 per cent females) self-employed in the district. The overall unemployment rate was 27 per cent (28 per cent male and 2 per cent female).

In Lasbela the literacy rate and level of education and skills, other than for those involved in agriculture and traditional livestock herding, are low.

There is an urgent need to develop a skilled labour force and use its full potential in sustainable development of the district. It is also imperative to focus on poverty reduction, sustainable livelihoods, and development of SMEs.

### Key Issues

- A large section of the work force is unskilled.
- Public sector institutions have unqualified and untrained staff.
- Despite a number of trainings funded, organized and conducted by public

sector institutions and civil society organizations, staff performance and efficiency have not improved.

- Lack of exposure, especially for community leaders and representatives, to the outside world with regard to accessing and availing employment opportunities.

### Measures

1. Human resource development for men and women will take place in the district at three levels, i.e. officials of the governments, CSOs and livelihoods/SMEs.
2. Large-scale need-based, government/donor/private sector funded industry, SMEs, mining, tourism, agricultural, livestock and fisheries related trainings at various levels, preferably district, at technical training centres, vocational training institutes and the University at Uthal will be organized.
3. Briefings will be arranged for tribal elders, religious leaders, progressive farmers and officials on the potential of SMEs and employment opportunities in the district, Balochistan and other provinces; and prerequisites will be provided for availing these opportunities.
4. Technical training for the labour force in line with market requirements in vocational and training centres and institutes, or on the job will be arranged. This training will be on industry, mining, SMEs, etc., and may be held in the district and in other parts of the province including Hub, Windar, Mable City, Gadani and Quetta, as well as outside the province, e.g., Karachi.
5. The mechanism of employment exchange will be revived, with a focus on private sector employment.
6. A market place for skilled labour will be established.
7. Needs-based vocational/technical training centres and training institutes in the district will be revived or established (where required).



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Community at Phore village in Lasbela

## 4.6 Poverty Reduction and Sustainable Livelihoods

The vision for Poverty Reduction and Sustainable Livelihoods is to promote alternative sustainable livelihoods such as from tourism; provide value addition for agriculture, livestock, fishery, poultry products and minerals; and develop the skills and aptitude of the local labour force in this regard through a crash programme to reduce poverty and enhance the long term social and economic well-being of the people of Lasbela District. Workers with lower education levels can provide the bulk of the work force in industrial and commercial establishments and earn their livelihood if their skills and attitudes towards industrial and mining jobs are improved.

The main stay of the majority of population is agriculture, livestock, coastal fisheries, commerce and trade, transport and poultry farming. A fraction of the labour force engaged in industry and mining is local; most of it comes from outside. Thus there is great scope for engagement of the local labour force in industry and mining. However, this depends on the resolve of the public and

private sectors to develop appropriate skills in the labour force and create appropriate opportunities, as well as on the readiness of the latter to avail these opportunities. The labour force, in turn, will need to be willing to accept the available jobs and perform them efficiently.

Value addition in agriculture, livestock, poultry and mining is not recognized or practised, despite its potential. Development of micro-enterprise and SMEs can go a long way in creating livelihoods and poverty reduction.

Tourism should be introduced in the district since there are important cultural and natural sites and tourism destinations including protected areas, beaches and coastal areas, and religious sites for Muslims and Hindus.

Some possible socioeconomic indicators for poverty and income distribution could be GDP per capita, per cent population below absolute poverty line, income distribution (preferably using Gini index) and the Gender Development Index (GDI).

### Key Issues

- The poor are among the worst affected due to:

- Lack of definition of their rights for the use and development of natural resources.
  - Negligence in focusing on poverty reduction.
  - Over-exploitation of dwindling natural resources, resulting in low resource productivity.
  - Degraded and depleted natural resources, including groundwater, land, soil, rangelands, livestock, forests, wildlife.
- Wastage of low quality fruits.
  - Low literacy rate, lack of appropriate access to education and poor quality education.
  - Unskilled, unemployed and under-employed human resources.
  - Natural disasters such as cyclones, tsunamis, floods, droughts, landslides and earthquakes.
  - Limited job opportunities, lack of job-hunting skills, and a mismatch of available labour with available jobs.
  - Lack of district-specific data regarding employment.
  - Political interference and lack of consideration of merit in filling in public sector positions.
  - Lack of awareness, expertise, entrepreneurship and micro credit for micro, small and medium enterprises.
4. Access to micro credit for both men and women (following the example of Grameen Bank in Bangladesh) will be facilitated to support self-employment.
  5. Existing micro enterprises such as handicrafts will be supported through technological and economic incentives.
  6. Setting up of new micro enterprises will be supported, including agriculture and livestock related value addition such as food processing (preparation of jams, jellies, pickles for home use and for marketing, using low quality or surplus fruits and vegetables), and handicrafts (knitting, sewing, embroidery).
  7. Access to state-of-the-art technology as well as to markets will be provided.
  8. Community development and involvement in planning and management, cooperative enterprise development, management and marketing through social mobilization and capacity building will be supported.
  9. Women will be encouraged to take up commercial poultry farming, apiculture, sericulture, and handicrafts; adopt careers in the education and health sectors and garment or pharmaceutical factories; and will be provided appropriate incentives and training.
  10. Awareness will promoted and information will be provided on potential micro enterprise opportunities and SMEs including sustainable livelihoods based on local resources and traditional knowledge.
  11. A District Sustainable Livelihood Plan and a Human Resource Development Plan will be developed and implemented.

## Measures

1. Data will be collected on human resources and existing livelihoods, and the potential of sustainable alternative livelihoods will be explored.
2. There will be a focus on human resource development, including skills development and focusing on the poor, keeping in view existing and potential livelihoods.
3. A marketplace will be developed for skilled labour in the district.
12. Technical and vocational trainings for producing a skilled work force for feasible small and medium enterprises will be arranged.
13. Training will be provided to farmers on livestock and poultry farming.
14. Processing and use of various local raw materials for value addition will be encouraged; and links with markets will be facilitated.

15. Merit-based employment in public sector agencies will be ensured.
16. Economic incentives for sustainable use of natural resources, e.g., technology-intensive efficient irrigation systems will be provided.
17. Sustainable collection of wild plants and products and cultivation of local medicinal and aromatic plants will be promoted.
18. The production, processing, grading and marketing of honey on a commercial scale will be encouraged and supported.
19. The potential of the following SMEs will be explored:
  - Fruit and vegetable grading, packing, preservation, processing, other value addition and marketing
  - Efficient irrigation techniques and related technology, including land levelling, on-form water management, drip/bubbler and sprinkler irrigation
  - Agriculture engineering including the repair of agricultural machinery such as tube well machinery
  - Cold storage
  - Solar, wind, biogas energy, fuel-efficient cooking and heating stoves, and cheap insulation for houses
  - Dairy farming; beef and meet fattening, and livestock farming
  - Livestock and poultry feed including urea molasses blocks and urea-treated straw;
  - Handicrafts. including carpets, rugs and other articles;
  - Upgradating chromite
  - Repair of household equipment; automobile repair; bee-keeping or apiculture; sericulture; basket making from mulberry twigs; computer and internet training; composting; cooking and baking, interior decoration, trade and commerce including import and export
20. The establishment of small and medium enterprises will be identified, encouraged and supported by creating an enabling environment and facilitating access to state-of-the-art technology, credit and development of a skilled labour force.
21. There will be settlement of land ownership and usufruct rights.
22. Value addition will be facilitated and markets will be established for innovative products.
23. Ownership or access for the poor to available resources and assets will be enhanced.
24. Appropriate measures will be taken to eliminate discrimination based on gender, ethnicity or caste; and ensure equal access to justice regardless of gender or social status.
25. Roads from farms to markets will be developed.
26. Measures will be taken to discourage and curtail child labour and facilitate children's access to school.
27. The *Waseela-i-Haq* (livelihood) programme launched by the federal government for poverty reduction will be redesigned and reactivated. This focuses on employment and housing projects for the poor and infrastructure building (e.g. roads and irrigation channels) in under-developed areas.

## 4.7 Social Insurance and Safety Networks

Pakistan has considerable legislation on labour laws, but few benefits reach the working class. The important laws include: (i) The Employees Social Security Ordinance 1965, (ii) The Employees Old-Age Benefits Act 1976, (iii) The Employment of Children Act 1991, and (iv) The Minimum Wages Ordinance 1961.

### Key Issues

- Workers are usually hired on monthly wages and are neither registered for

nor receive social protection benefits, even though all establishments employing more than five workers are required to register their employees and pay for their social security benefit under the Balochistan Social Security Act.<sup>22</sup>

- All establishments employing more than 10 workers are required to register and pay old-age pension benefits for their employees.

## Measures

1. The application of Social Security, EOBI, Minimum Wage and Employment of Children Act in Economic Free Zones, Special Industrial Zones, Export Processing Zones and mining areas, and their compliance, enforcement and monitoring will be ensured.
2. The Balochistan Social Security Institution and the Employees Old-age Benefits Institution will register establishments with more than five and ten workers and their employees.
3. The district administration will pursue registration of establishments and workers in the district with EOBI and BESSI for social benefits. Social security provides health care facilities to all workers and their families and provides wages in case of some chronic disease that require long-term treatment. EOBI provides pension to workers on retirement and a one-time registration is comprehensive for life, even if the worker changes jobs.
4. Offices of the Balochistan Employees Social Security Institution and Employees Old-age Benefits Institution in Gadani and other places where there is labour force concentration will be established. Currently, these are only present in Hub and Windar.
5. There will be better and transparent management of *Bait-ul-Mal* (government department for collecting and distributing zakat) and Benazir Income Support Programmes.

# 5. Housing and Settlements

## 5.1 Housing & Settlements

**T**he vision of the sector is to provide safe shelter for all with facilities and utilities in upgraded and planned settlements. An affordable housing strategy for the district would increase the supply and diversity of modest-cost housing, eliminate homelessness and respond to the needs of low-income families. The goals of land use planning and transportation would be to create compact urban areas, support a sustainable economy, develop and protect the green zone, develop complete and resilient communities, and support sustainable transportation choices that are environment- and user-friendly, convenient, and affordable.

The goals for solid waste management would be to minimize waste generation; maximize reuse, recycling, material recovery (e.g. compost) and recovery energy production in Hub where the quantity of solid waste is significant; and to extract maximum benefit from the disposed waste.



In terms of ecological health, the district will be more sustainable if important ecological areas are secured, protected, and managed, pollution and use of energy are reduced, and the green lungs of settlements are restored or created and maintained.

The word “Las” means a plain and “Bela” mean forest. Surrounded by hill ranges, the greater part of the area is a flat plain, Bela being the main town at the apex of the plain about 100 km from Karachi. Uthal Town has great potential as a trade centre for all coastal areas of Balochistan and for the south-western parts of the province.

There are five urban settlements in Lasbela District.<sup>23</sup> Their characteristics and issues are listed in Table 3.

There are 288 rural localities in the district. Two localities have a population of 5,000 and above; 18 have a population of 2,000-4,999; 37 have a population of 1,000 to 1,999; 65 have a population of 500 to 999; 77 have a population of 200 to 499; 63 have less than 200 people and 26 localities are uninhabited.

Seventy-two per cent of the housing units in the district were single-room; this was 30 per

cent higher in rural areas than in urban areas. The percentage of housing units with 2 to 5 rooms and the number of rooms per housing unit were higher in urban areas than in rural areas. The level of congestion in terms of persons per housing unit is however higher in urban areas at seven persons per unit, in contrast to six persons per unit in rural areas. Therefore, construction of more housing units is required in urban areas.

49,171 housing-units were recorded in Lasbela District during the 1998 Census: 33,966 (69 per cent) in rural areas and 15,205 (31 per cent) in urban areas. 90 per cent of the housing units were self-owned. The percentage of rented housing units in urban areas was higher. 52 per cent housing units were built more than ten years ago, 28 per cent during the last 5-10 years and 19 per cent during the last five years. Construction of new housing units continues in both rural and urban areas, with a higher percentage being built in rural areas.

In urban areas, 52 per cent of the housing units had standard *pucca* (baked brick) walls, made of baked bricks/blocks or stones with cement bonding; the rest, in both urban and rural areas were *kutchha* (mud or unbaked



Information center and rest house at Hingol National Park

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**Table 3: Characteristics and Issues of Urban Areas in Lasbela**

Key Characteristics	Main Issues
<b>1 Hub Chauki Town</b>	
<ul style="list-style-type: none"> <li>● Population: 62,763 (1998)</li> <li>● Civil Sub division and Tehsil</li> <li>● Some district-level offices located in Hub Town,</li> <li>● Regional office of BEPA</li> <li>● Urban</li> <li>● Industry, trade and commerce</li> <li>● Concentration of industrial work force</li> <li>● Drinking water from obtained from Hub Dam through open canal</li> <li>● Comparatively better education and health facilities than in other parts of the district</li> </ul>	<ul style="list-style-type: none"> <li>● Industrial waste and effluent not treated and discharged untreated through a drain in the Hub River</li> <li>● Strikes and problems with law and order</li> <li>● Unplanned development and growth</li> <li>● Traffic congestion due to the Makran Coastal Highway passing through the town</li> <li>● Unsafe disposal of solid waste and hospital waste</li> <li>● Overcrowded schools</li> <li>● High prevalence of disease</li> </ul>
<b>2 Uthal Town</b>	
<ul style="list-style-type: none"> <li>● Population: 13,319 (1998)</li> <li>● District Headquarters</li> <li>● Urban</li> <li>● Trade and commerce</li> <li>● Comparatively better education and health facilities including the Lasbela University of Marine Sciences</li> </ul>	<ul style="list-style-type: none"> <li>● Unplanned development and growth</li> <li>● Traffic congestion in the NHW passing through the town</li> <li>● Unsafe disposal of solid waste and hospital waste</li> <li>● Overcrowded schools</li> <li>● High prevalence of disease</li> </ul>
<b>3 Bela Town</b>	
<ul style="list-style-type: none"> <li>● Population: 16,705 (1998) -</li> <li>● Civil Sub division and Tehsil</li> <li>● Urban</li> <li>● Comparatively better education and health facilities than in other parts of the district</li> <li>● Seat of political power and influence</li> </ul>	<ul style="list-style-type: none"> <li>● Unplanned development and growth</li> <li>● Unsafe disposal of solid waste and hospital waste</li> <li>● Overcrowded schools</li> <li>● High prevalence of disease</li> </ul>
<b>4 Windar Town</b>	
<ul style="list-style-type: none"> <li>● Population: 11,569 (1998)</li> <li>● Tehsil Headquarters of Sonmiani</li> <li>● Semi urban</li> <li>● Industry, trade and commerce</li> <li>● Industrial work force</li> </ul>	<ul style="list-style-type: none"> <li>● Industrial waste and effluent not treated and discharged untreated</li> <li>● Unplanned development and growth</li> <li>● Traffic congestion in the NHW passing through the town</li> <li>● Unsafe disposal of solid waste and hospital waste</li> </ul>
<b>5 Gadani</b>	
<ul style="list-style-type: none"> <li>● Population: 11,068 (1998)</li> <li>● Tehsil Headquarters</li> <li>● Urban</li> <li>● Ship breaking industry</li> <li>● Concentration of labour</li> <li>● Coastal town</li> <li>● Energy-related and other industries planned to be set up in the surrounding areas</li> </ul>	<ul style="list-style-type: none"> <li>● Pollution from ship breaking industry</li> <li>● Unplanned development</li> <li>● Unsafe disposal of solid waste and hospital waste</li> </ul>

brick). 40 per cent of the housing units had a separate kitchen, 33 per cent units had separate bathrooms and about 20 per cent units had separate latrines. The percentage of shared kitchens was 38; 34 per cent houses

had shared bathrooms and 23 per cent shared latrines. More than 20 per cent of the houses had no kitchen or bathroom facility and more than 56 per cent had no latrine facility. The position of the rural areas was worse.

Regarding other facilities<sup>24</sup>, in urban areas, 49 per cent housing units got piped water, of which 37 per cent was inside the houses. In comparison, in rural areas, 8 per cent of homes had piped water, of which 2 per cent had it inside the house. Two important sources of drinking water both inside and outside the houses are hand pumps and wells, which fulfil the need of 51 per cent of housing units in rural and about 20 per cent in urban areas. The pond was the single largest source of drinking water outside the houses, used by more than 16 per cent rural and 6 per cent urban housing units.

Electricity was available to 29 per cent of the housing units in the district, and was significantly higher in urban areas (69 per cent) than in rural areas (11 per cent). More than 87 per cent of the housing units in rural areas used kerosene oil as a source of lighting, as against 28 per cent in urban areas.

More than 88 per cent of the housing units in the district used wood as fuel for cooking, 95 per cent in rural areas compared to 74 per cent in urban areas. Use of gas was 15 per cent in urban houses as against 0.3 per cent in rural areas. Kerosene oil was used as cooking fuel by 7 per cent of housing units in urban areas as compared to 3 per cent in rural areas.

About 14 per cent of the total households in the district had access to television, 31 per cent to radio and 15 per cent to newspapers. A higher percentage of households in urban areas had access to information.<sup>25</sup>

### Key Issues

- The 2008 population census was not undertaken and is expected to be conducted in 2011. This results in a lack of accurate information, which is a serious constraint in planning facilities and utilities for settlements.
- Lack of planning at house, town and regional levels.
- The design of houses and the construction materials used, especially in the rural areas, cannot

withstand earthquakes, cyclones or floods.

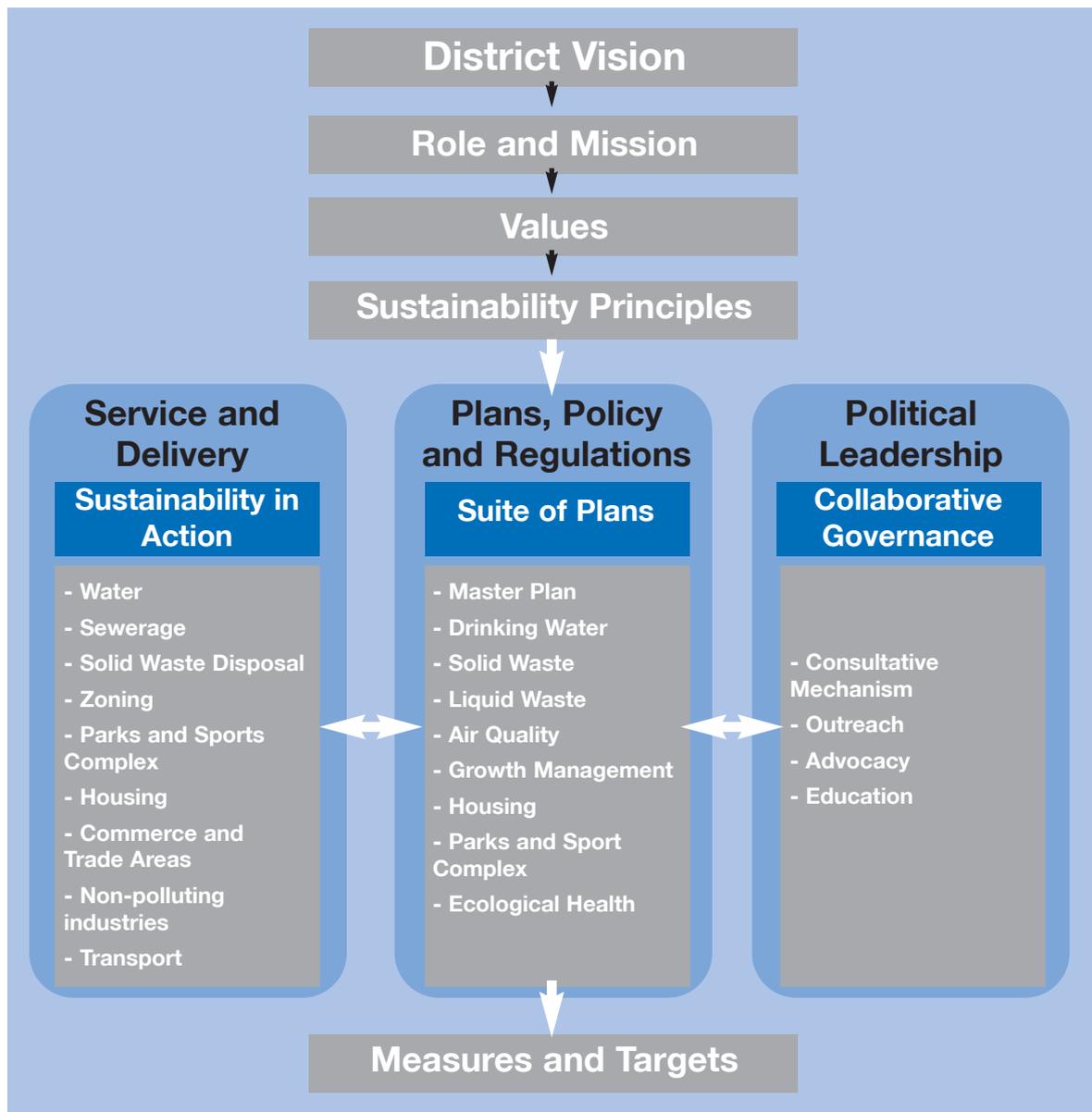
- Scarcity of safe drinking water.
- Lack of drains or sewerage systems and treatment of sewerage.
- Incomplete and/or unsafe disposal of waste (solid, hospital and industrial).
- Pollution (air, water, land, soil, noise).
- Vegetable cultivation with untreated sewage in urban suburbs.
- Lack of open green spaces and parks in urban areas.
- Traffic congestion and rural depopulation.
- Periodically insecure situation in Hub Chauki Town due to strikes.

### Measures

1. There will be a credible and complete census of housing units in the district in 2011 as an integral part of the population census.
2. The planning tool below will be used for housing and settlements.
3. Safe disposal of solid waste, industrial waste and hospital waste will be ensured.
4. User charges and property tax will be levied and collected, and octroi or similar charges will be revived.
5. Transparent working of security networks for the poorest of the poor will be ensured.
6. A one-window complaint and grievance addressing systems in all urban settlements will be established.
7. Regional planning, master planning of urban areas and potential growth centres, and development planning control will be ensured.

<sup>24</sup> Government of Pakistan. Population Census Organisation. *District Census Report (1998) Lasbela*. Islamabad: PCO, Statistics Division, GoP, 2001.

<sup>25</sup> Government of Pakistan. Population Census Organisation. *District Census Report (1998) Lasbela*. Islamabad: PCO, Statistics Division, GoP, 2001.

**Figure 2: Housing and Settlements Strategy**

8. A drainage or sewerage system will be constructed where needed and treatment of the sewage and industrial wastes of Hub Chauki, Windar, Bela, Uthal and Gadani Towns will be implemented.
9. Smaller settlements will be clustered and readjusted for provision of facilities and utilities.
10. Risks, especially in urban areas, will be reduced by providing manhole covers, fire brigades, civil defence and disaster risk management.
11. Security in Hub Chauki will be improved.
12. Environment-friendly development in and around settlements will be ensured.
13. There will be good governance, transparency and accountability in managing settlements and all public services.
14. Pollution control (air, water, land, soil and noise) will be ensured.
15. Access roads, inter-city and intra-city vehicle stands, street pavements and lights will be provided.

16. Supply of adequate and environment-friendly transport by the private sector will be ensured.
17. Adequate and quality facilities (health, education, WatSan, livelihood and utilities (electricity, gas) will be provided wherever possible.

## 5.2 Water

The vision of the district is safe drinking water and sanitation for all. The goals of the drinking water resources strategy are to provide clean, safe drinking water, ensure sustainable use and efficient supply of water, and manage and protect the watersheds that provide the district's water. The goals for liquid waste management include protecting public health and the environment and managing liquid waste affordably and effectively.

Safe drinking water is a basic human need and the government is committed to halve the proportion of people without sustainable access to safe drinking water within two kilometres or 30 minutes (return) and basic sanitation under MDG 7 by the year 2015. Only one third of the population of the district has access to safe drinking water. The MICS (2004) estimate of higher coverage is based

on a small sample and is unreliable. This target is challenging and needs maximum effort if it is to be achieved. Containing demand, efficient use, enhancing water recharging and controlling water pollution are some of the important related aspects of water supply that need to be addressed.

### Drinking Water

PHED and municipal committees are responsible for supplying safe drinking water in rural and urban areas respectively. Some people get drinking water from hand pumps; others are dependent on agricultural tube wells. However, the majority of the rural population does not have access to safe drinking water. They fetch water from ponds or other sources of stagnant water, which is not clean enough to drink. In urban areas, water in broken pipelines sometimes mixes with the sewage water, causing diseases among people.

Canal water, which is stored in open tanks through open drains and is used for drinking, as in Hub Town, needs filtration according to the World Health Organization's health standards. The incidence of hepatitis, typhoid and other infectious diseases has been increasing in the district and is due primarily to drinking polluted water. This is a significant problem that needs immediate attention.



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Community-managed well at Kund Malir, Hingol National Park

**Table 4: Water Filtration Plants Installed in Lasbela District under Phase 1 of the CDWI Project 2005-06**

S.No.	Tehsil	Locations
1.	Hub S/Tehsil	Under the overhead Reservoir at Hub Water Works
2.	Bela Tehsil	Under OHR near Chutki Road PHE Water Supply Scheme, Tehsil Bela
3.	Uthal	Near Jamote Street & Civil Hospital, Tehsil Uthal
4.	Lakhra	Near Main Bazaar & Police Station, Tehsil Lakhra
5.	Liari S/Tehsil	Liari Bazaar near Moolchand House and Shop, Tehsil Liari Lasbela
6.	Gadani S/Tehsil	Near Township Wadera Khuda Baksh Abbad and Ship Breaking Road, Fire Brigade Station, Fadani City
7.	Dureji	Mohallah Kacho, Near Cattle Barah, behind Sardar Saleh Bhotani House, Tehsil Dureji

Source: Deputy Project Director: CDWA Ministry of Special Initiatives Islamabad

**Table 5: Water Filtration Plants, installed in Union Councils of Lasbela District in Phase II of the Clean Drinking Water for All (CDWA) Project 2007-10**

Union Council Locations		
Bela	Uthal	Dureji
1. Rural Health Centre, Bela city	1. Uthal City	1. Dureji Town Area
2. Goth Saleh chib	2. Kheer Golai Mauza Chotra	2. Goth Haji Sadiq Jamali
3. Jam Yousafabad Danda	3. Goth Haji Sidiq Shaikh	3. Chotair Rest House
4. Goth Mossiani	4. Jamia Masjid	4. Baghow stoc
5. Goth Issa	5. Near Buldia Rest House	5. Poi bazaar
	6. Near Fire Brigade Office	6. Rigurah cross
	7. Gujar Goth, near Bhawani Madrasa	
	8. Gaddani Bazaar	
	9. Bhria Sonmiani	

Source: Deputy Project Director: CDWA Ministry of Special Initiatives Islamabad

**Clean Drinking Water programme:** Water filtration plants have been installed in the tehsils of Lasbela district under the Clean Drinking Water Initiatives (CDWI) Project. The scheme consists of three phases. The first phase, which was planned for the tehsil level, started in 2005 and was completed in 2006. The second phase is under execution at the Union Council level. So far, 390 plants have been installed in different part of the Province. Phase III is for villages with populations of 1,000; the scheme is expected to start after completion of the current phase. Water filtration plants installed under Phase 1 are given in Table 4.

Water filtration plants installed in the union councils of the district in Phase II of the Clean Drinking Water for All (CDWA) Project 2007-10 are given in Table 5.

“According to the relevant federal agency, almost all installed plants are operational and being maintained by the Public Health Engineering Department (PHE Dept.), as the executing agency, in the Government of Balochistan.

“The PHED has contracted two firms for Operation and Maintenance (O&M) of the installed plants at tehsil level, but the firm that installed the plants at the UC level is responsible for their O & M for a period of three years post installation. The O&M requires change of media, change of membrane (filter), chlorine-dozing, hourly backwash system (installed for every plant).

“The federal government’s commitment for funds for O & M of the installed plants is for three years, thereafter the provincial government is expected to take on this

**Table 6: Issues, Policies and Strategies for Drinking and Sanitation Water**

Water for Drinking and Sanitation		
Issue	Policy	Strategy
Lack of access to safe drinking water	<p>Provision of safe drinking water to be respected as a fundamental right</p> <p>Reduce the proportion of people without sustainable access to safe drinking water progressively (halve by the year 2015)</p>	<p>Set annual plans and targets to increase percentage of population with access to safe/piped water</p> <p>Provide adequate budgetary allocations to achieve targets</p>
Inadequate availability of water for drinking and sanitation	<p>Ensure provision of adequate water to meet the needs of rural and urban populations</p> <p>Separate arrangements for supply of potable water should be encouraged wherever feasible</p>	<p>Identify new schemes and additional sources of water supply</p> <p>Conduct technical and economic feasibility studies for transporting water through pipes and pumps, even over long distances, and to higher elevations</p> <p>Ensure adequate investment through PSDP and promote public-private partnership</p>
<p>Dilapidated state of water supply systems (wherever these exist)</p> <p>Poor quality and microbially hazardous drinking water</p>	<p>Improve maintenance of infrastructure to reduce wastage of water through leaking pipes</p> <p>Improve water quality in accordance with national/international standards</p>	<p>Effective rehabilitation and improvement in efficiency of existing water supply systems.</p> <p>Establish laboratories for water quality testing within convenient distances. Laboratories should be equipped properly, maintained and operated by qualified field staff</p>
<p>Lack of testing, monitoring and enforcement of standards regarding quality of water</p> <p>Lack of operational sewage treatment facilities and direct effluent disposal, polluting fresh water bodies (streams, lakes, etc)</p> <p>Unaffordable water charges and subsequent consumers' concern</p>	<p>Ensure regular testing of water</p> <p>Provide hygienic sanitation facilities for 100 per cent of the urban and rural population by 2025 through the provision of appropriate waterborne sewerage system and sewerage/wastewater treatment plants</p> <p>Promote water metering and demand-based affordable water charges</p>	<p>Creation of appropriate Water Quality Monitoring Authorities in provinces and Federal Territories and enforcement of quality standards</p> <p>Create water and Sewerage Agencies/Boards in major cities/towns and provide adequate financing to cope with the problem</p> <p>Enhance water use efficiency through mass awareness. Provide subsidy to keep the water rates at affordable levels</p>

**Table 7: Issues, Policies and Strategies Regarding Water Pollution**

Water for Drinking and Sanitation		
Issue	Policy	Strategy
Deterioration in water quality due to salt contamination from agrochemicals, municipal and industrial effluents.	<p>All users of water, public or private, shall have the right to receive water of specified quality at their premises of use; and they shall concurrently have the obligation not to degrade the quality of water beyond what is acceptable.</p> <p>Maintenance of water quality in rivers, reservoirs, lakes, canals, water bodies and coastal areas including groundwater shall be a national priority.</p> <p>Strengthen, promote and support public and private research organizations and universities to undertake research to develop appropriate technologies for issues related to saline water agriculture, hydraulic performance of channels, salinity modelling, etc.</p>	<p>Implementation of monitoring programme to:</p> <ul style="list-style-type: none"> <li>● Establish quality standards for water for different uses and for surface and groundwater.</li> <li>● Develop and implement a comprehensive programme for water quality monitoring.</li> </ul> <p>Standards of NEQS be reviewed, updated and enforced for agricultural drainage, municipal, rural and industrial wastewater treatment and safe effluent disposal</p> <p>Undertake, encourage and support Research and Development (R&amp;D) in improving water management.</p>

Source: Draft National Water Policy Water and Power 2006.

responsibility. The monthly expenditure of one plant is Rs 12,500/, which includes the operator's monthly salary of Rs. 5000/.”<sup>26</sup>

The issues, policies and strategies regarding water pollution are given in Table 7.

### Key Issues

- Despite scarcity of drinking water, there is considerable wastage due to loss during transportation and unwise use for domestic purposes.
- PHED and municipal authorities are often reluctant to collect water bills regularly given the high political cost of cutting off water supply to defaulters.
- In both rural and urban schemes, water supply costs are high as compared to income from payment of water bills. Electricity bills and staff overheads are also high. Consequently, either large electricity

arrears accumulate or the deficit is covered by mainstream revenues or the regular budget. However, tube wells run by village development organizations (VDOs) in rural areas lack a safety net and are often forced into disuse when the revenues collected are insufficient to pay electricity bills and other maintenance expenses.

- Wastewater treatment systems do not exist in urban centres in the district. Untreated sewerage causes many problems including large-scale water pollution and disease. The same water is also used for growing vegetables, which are unhealthy and pose a significant public health risk.

### Measures

1. It will be ensured that the surface water used for drinking in towns such as Hub, through water supply schemes, is treated

- and the sand filters on dead storage are maintained properly.
2. An integrated approach will be adopted, with rational resource use, and water efficient techniques will be introduced.
  3. Performance and utilization of local systems through better planning, management and community participation will be improved.
  4. Understanding of linkages between hygiene and health through community education campaigns, especially among women and children will be improved.
  5. Simple benchmarking tools and guidelines will be developed to assess the quality of operation and maintenance of water supply schemes.
  6. Water supply pipelines will be maintained and replaced if old, leaking or damaged, to avoid danger of contamination.
  7. PHED and municipal committees will establish strict controls on security of pipelines to prevent installation of unauthorised water connections of suction pumps on main supply pipelines.
  8. A Drinking Water Management Plan will be developed and implemented for adequate water supply for all urban centres and large villages with populations of more than 2,000, to contribute to a healthy sustainable district through wise stewardship of its drinking water resources.
  9. A Code of Conduct for Drinking Water Conservation will be developed and promoted, which is essential in the wake of rapid growth in population and the consequent increase in demand.
  10. The effectiveness of WatSan and waste disposal activities will be regularly monitored through credible citizens' monitoring committees and their recommendations will be implemented.
  11. Coverage of communal filtration plants will be extended and regular maintenance of water filters, etc will be ensured.
  12. Quality of and easy access to water supply, especially for women will be improved.
  13. Quality of the water supply for drinking purposes will be maintained in conformity with WHO recommended standards.
  14. Studies will be conducted to develop alternative sources of water supply in the district.
  15. There will be a focus on institutional strengthening, capacity building and human resource development.
  16. Water desalination units will be established in coastal areas for drinking purposes.
  17. Water storage dams will be developed with designs based on careful study of water flows and flood data.
  18. Proper structural maintenance of storage dams will be ensured.

### 5.3 Sanitation

The vision for sanitation is toilets in all houses, and complete coverage, safe disposal and treatment of sewerage and industrial discharge in urban and rural areas of the district.

Wastewater treatment systems do not exist in the urban centres of the province (only one wastewater treatment plant has been recently installed in Quetta City and work on another two is on-going). Untreated sewerage causes many problems including large-scale water pollution and disease and is used for growing vegetables, which is unhealthy and creates a significant public health risk.

The National Sanitation Policy (NSP- 2006)<sup>27</sup>, approved by the federal government in 2006, focuses on safe disposal of excreta through the use of latrines, the creation of an open, defecation-free environment, safe disposal of liquid and solid waste, and the promotion of safe health and hygiene practices. In order to support implementation of the guidelines, effective institutional and financial frameworks are envisaged. Sanitation

27 Government of Pakistan. Ministry of Environment (September 2006). *National Sanitation Policy*. <http://www.Pakistan.gov.pk/divisions/environment-division/media/Sanitation%20Policy.pdf>. Retrieved 2008-05-30.



© NFSP, Faizur Rehman

Poor sanitation – a sore sight in the district

programmes are linked with environment, housing, water and regional planning policies and programmes.

The federal government provides incentives for the implementation of the NSP such as rewards for open, defecation-free tehsils and towns, the cleanest tehsils/towns with 100 per cent sanitation coverage, and the cleanest industrial estates or clusters.

### Key Issues

- Lack of proper sewerage or inadequate drainage system throughout the district.
- Throwing of garbage in sewer drains, wherever they exist, e.g., in Hub Town, and lack of maintenance of the drains to control ground water pollution.
- Discharging untreated sewerage and industrial effluents in water bodies, such as in Hub and Porali Rivers and the Arabian Sea.
- Lack of treatment of sewerage and recycling of treated sewerage for

reuse in agriculture, city parks and lawns.

- Open defecation in rural areas due to lack of latrines in many houses.
- Used polythene bags thrown in the open, which are a hazard to cleanliness, safe water, and human health; aggregate the problem of solid waste and choke sewer lines and drains.
- Illegal water connections, which are a menace to PHED and the municipal committees in terms of theft of water, loss of revenue, poor sanitation, etc.

### Measures

1. The production and use of polythene bags will be restricted and the use of reusable cloth bags or biodegradable bags will be promoted.
2. Hygiene kits to students will be supplied periodically.
3. The sewerage system in towns and large villages will be provided and/or maintained.

The same will be reused for agriculture, lawns and grassy grounds; the expertise in the field of wastewater irrigation will include a mix of agronomists, engineers, social scientists and public health experts.

4. Construction of latrines in households and public places where non-existent will be supported, open defecation will be discouraged, and public toilets will be kept clean through a user fee system.

## 5.4 Environment (and Sustainability)

The vision of the environment in the district is of being NEQS-compliant and engaging in environment-friendly development and production, safe disposal of all kinds of wastes and effluents, and developing and maintaining green lungs in all urban centres.

The goals of environmental improvement include reduction in air, land, soil, noise and water pollution and creation of a healthy environment for better quality of life and optimum productivity. The goals of air quality management would be to minimize the risk to public health from air pollution and minimize the district's contribution to climate change.

The discussion in this section focuses on overall environmental health in the district, its impact on the people and a broader approach to address environmental issues.

Most of the district is free from pollution. However, the industrial cum urban areas of Hub, Gadani, Windar, and Marble City are polluted because of industrial emissions, wastes, effluents and municipal wastes and discharge. The mining areas in the district are polluted due to waste and alteration of landscape. The furnace oil-based Hub Power Plant is also a source of pollution, resulting in a serious pollution in Hub Town.

The municipal effluents and solid waste of Bela Town are disposed of in Porali River. Similarly, the untreated industrial and municipal effluents and wastes from Hub Gadani Towns are discharged into Hub River and the Arabian Sea respectively.

The quality of drinking water in most parts of the district is low mainly due to pollution from

various sources. Open defecation is practiced by the inhabitants of houses without latrines. Similarly, hand washing before meals is generally neglected.

### Climatic Change and Rising Sea Level:

The mean sea level is rising slowly but gradually due to global warming at a rate of about 1.1 millimetres per year. This will have an impact on the low-lying coastal areas of Lasbela District, especially the beaches, lagoons and estuaries of the rivers, and the rivers for which there are plans to build dams, such as the Hingol and Windar Rivers. The rising sea level will increase salinity of the water and change the ecological character of these water bodies. Rising of the sea level may also increase the salinity level of freshwater surface reservoirs and groundwater in coastal areas.

### Key Issues

The deteriorating environment is a major issue in Lasbela District, in particular in Hub, Gadani, Windar and Bela Towns and other urban areas. The issues faced in the district include:

- Emissions from transport, industries, dairy farms and human population in urban areas are polluting the air and impacting people's health.
- Unsafe disposal of untreated industrial effluents and sewerage.
- Improper and unsafe disposal of solid waste, hospital waste and industrial waste including used polythene bags.
- Occupational health and workers' safety issues in industries, SMEs, and mines are affecting workers.
- Incomplete or no coverage for workers of services in terms of social security, old age benefits, etc.
- Spraying vegetables and orchards with pesticide, which is polluting the soil, the air and the water.
- Lack of or uncoordinated development planning and implementation.

#### Box 4: Functions of the BEPA Regional Office – Hub Town

BEPA has established its Regional Office in Hub Town in January, 2010, to perform the following functions:

- Seek compliance and enforcement of NEQS;
- Ensure, guide and assist advocates for new projects to submit an Initial Environmental Examination (IEE)/ Environmental Impact Assessment (EIA) to the Director General, EPA, for approval;
- Ensure implementation of environmental protection and preservation measures for all development projects at the district level
- Sensitize government agencies on environmental issues;
- Identify the need for legislation in various sectors on environmental matters;
- Provide information and guidance to the public on the environment;
- Regulate motor vehicles according to the provisions of the Pakistan Environmental Protection Act, 1997;
- Encourage the establishment of non-governmental organizations, to work on pollution control and sustainable development;
- Undertake regular monitoring of projects and submit progress reports to the DG, EPA, for publication in the EPA's Annual Report;
- Ensure timely publication of Annual Reports.

- Inadequate housing and development of slums (*kachi abadis*) as well as mud houses in rural areas and slums in urban areas, which are vulnerable to destruction by earthquakes, cyclones, floods and even strong winds.
- Weak compliance and enforcement of laws.
- Low quality (from ponds and open stagnant sources) and scarcity of drinking water due to mismanagement of freshwater resources and groundwater recharge problems.
- Contamination of water supply due to mixing of sewage with drinking water because of leaking sewer lines, and broken conveyance and distribution pipes for drinking water in urban areas, e.g., Hub Town.
- Growing of vegetables with untreated sewage in some urban suburbs.
- Pollution from untreated industrial effluents and sewerage is affecting the

Hub and Porali Rivers and the Arabian Sea.

- Noise pollution on highways and roads passing through urban centres.
- Smoke and emissions from industries and transport (due to lack of tuning, use of old vehicles and traffic congestion) are polluting the air and impacting the health of people living near industries and roads.
- The southern suburbs of Hub Town are the backyards for some of the waste from Karachi City.

#### Measures

1. There will be awareness raising on environmental issues among teachers, students, policy makers, planners and the general public.
2. Participatory planning, management and implementation for addressing environmental issues, and achieving environment-friendly development and

- environmental sustainability will be introduced.
3. BEPA will monitor air and water pollution in industrial and urban areas and monitor water quality throughout the district.
  4. BEPA will seek compliance of and enforce National Environmental Quality Standards (NEQS) for air, water and other environmental parameters in municipal effluent, industrial discharge and development projects.
  5. BEPA will issue environmental orders for all violations of the Pakistan Environmental Protection Act, 1997, and pursue cases in the Environmental Tribunal.
  6. Public and private sector projects will comply unequivocally with the requirements of the IEE and EIA under the EIA Guidelines of the Pakistan Environmental Protection Agency, irrespective of emergency or priority. While BEPA will review these through a wide consultation process, unnecessary delays in the EIA review process will be avoided.
  7. There will be periodic checking of vehicles jointly by BEPA and police staff for air and smoke emissions.
  8. Stringent annual/bi-annual checking of vehicles for safety and emissions by the Motor Vehicle Examiner will take place.
  9. There will be regular cleaning and disinfection of overhead water tanks in houses.
  10. Leakage of sewer and drinking water lines will be repaired and steps will be taken to ensure that the lines do not get mixed
  11. Silencers of rickshaws, motorcycles and other vehicles will be checked periodically and their repair will be ensured to reduce the high noise levels in urban areas.
  12. Hospitals, courts, educational institutions, government and private agencies' offices and public parks will be designated as silent zones (blowing of horns will be banned) and this provision will be strictly enforced.
  13. BEPA will periodically survey new sources of pollution.
  14. A combined industrial and sewerage treatment plant in Hub will be installed.
  15. WatSan coverage to all large settlements will be extended.
  16. Auto-rickshaws will be switched to CNG or phased out to reduce air pollution and noise. New licenses for petrol rickshaws will not be given.
  17. Urban planning with implementation will take place for all towns.
  18. Landfill site development for proper management and safe disposal of municipal waste and non-hazardous industrial waste will be ensured.
  19. Safe collection, transportation and incineration of waste produced in all hospitals in the district will be ensured.

## 6. Natural Resource and Climate

**“Expanding human requirements and economic activities are placing ever increasing pressures on land resources, creating competition and conflicts and resulting in suboptimal use of both land and land resources. If, in the future, human requirements are to be met in a sustainable manner, it is now essential to resolve these conflicts and move towards more effective and efficient use of land and its natural resources,” emphasizes Agenda 21.<sup>28</sup>**



**Integrated physical and land-use planning and management are an eminently practical way to achieve this. By examining all uses of land in an integrated manner, it makes it possible to minimize conflict, to make the most efficient trade-offs and to link social and economic development with environmental protection and enhancement, thus helping to achieve the objectives of sustainable development.**

28. Agenda 21 is one of the outcomes of United Nation's Conference on Environment and Development (UNCED) held at Rio de Janeiro (Brazil) in 1992, which was attended by the Heads of States including the Prime Minister of Pakistan, as the leader of the Group of 77.

The integrated approach to planning and management requires reorganization and, where necessary, strengthening of the decision-making structure, including existing policies, planning and management procedures and methods that can assist in putting in place an integrated approach to natural resource and socioeconomic development.

The operational aspects of planning and management are more appropriately dealt with under the relevant sectoral programmes in this chapter. However, cross-sectoral consideration is also necessary in decision-making for sustainable development.

## 6.1 Land

The total geographical area of the district is 1,515,300<sup>29</sup> ha. The reported area is 1,255,390<sup>30</sup> ha (83 per cent) of which 71 per cent (893,190 ha) is cultivable waste. The cultivated area comprises 83,356 ha (7 per cent) i.e., 50,203 ha current fallow land (abnormally large) and 33,153 ha net sown (comparatively low). 0.2 per cent is waterlogged and 10 per cent (grossly under estimated) is not available for cultivation due to topography and lack of irrigation facilities. Thus, the total area available for cultivation is 976,546 ha (64 per cent of the total geographical area), which is considerably over-estimated.<sup>31</sup> A large area of the district can be cultivated if water can be developed for irrigation, although this too, is an optimistic estimate. All these figures need validation by determining existing and potential land use with the help of GIS-based maps developed from satellite images.

Expansion of cultivation through public-private-community partnerships needs to be explored. Land use planning of the district is a priority in order to maximise benefit and reduce conflict. The market prices of the land need rationalisation; at the minimum provisions of the Land Acquisition Act 1894 should be applied and speculative buying should be discouraged.

## Key Issues

- Statistics for the reported area are not reliable. About 17 per cent of the geographical area is still un-reported, which means its land use is unknown.
- Although livestock grazing is a major activity in the district, the exact area and location of rangelands are not available.
- Details of the cultivable waste area are not available.
- The forest cover area, notwithstanding the notified forest area, is not known, making planning and supporting forest management in collaboration with communities difficult.
- Some forest areas were transferred to industrial estates and some to the Prison Department.
- There are no land use planning or development planning controls in the district.
- Land records are maintained manually and are not computerised.

## Measures

1. Mutation of the state land of Hingol National Park in the name of the Balochistan Forest and Wildlife Department will be done. It will be ensured that there is no delay since that may cause litigation, especially in the wake of development of Hingol Dam.
2. GIS-based maps of land use in the district will be prepared with the help of appropriate land satellite images. This will provide an accurate and comprehensive inventory of natural resources and land use in the district for planning and policy decisions, as well as for use as relevant.
3. Land settlement in the remaining area, wherever administratively possible, will be

29 Survey of Pakistan map of Lasbela District

30 Government of Balochistan. Agriculture Department. Directorate of Crop Reporting Services. *Agriculture Statistics of Balochistan 2008-09*. Quetta: GoB, 2009.

31 Government of Balochistan. Agriculture Department. Directorate of Crop Reporting Services. *Agriculture Statistics of Balochistan 2008-09*. Quetta: GoB, 2009.



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Tube well at a farm in Uthal

undertaken. This is an important prerequisite for development of land for agriculture.

4. Land consolidation, and completion and computerisation of land records will be ensured.

## 6.2 Water

The vision for the water sector in the district is:

- To become a provider of water for WatSan, agriculture, industry, fisheries, nature conservation, tourism and other uses, mainly through surface water development
- To be a controller and regulator against inefficient use, ground water mining and water pollution; and
- To provide coordination for all water use and stakeholders regarding participatory policy-making, compliance and enforcement of laws, planning, management and monitoring.

Water is key for livelihood, sustenance, economic development and conservation of nature. The main uses of water are for

drinking and domestic needs; for food (agriculture, fisheries); for development (energy, industry, transport, tourism); and for nature (wetlands, water birds and other aquatic life, mangroves and plantations). It is also a source of power and often leads to conflict of interests and identity battles. Fresh water has great significance for arid districts such as Lasbela.

In addition to traditional water use for domestic purposes and irrigation, its wider aspects include an array of political and ecological processes that influence water governance, water rights, hydropower/irrigation dam construction, water pollution, water organizations, participation, river basin management, water policy implementation and judicial decision-making in water conflicts.

Social participation in water management and governance exists traditionally in tribal societies such as Lasbela but has not evolved as effectively in case of new developments such as canal irrigation in Hub Tehsil. The key dimensions of contemporary water management relating to participation are indigenous water governance, gender dynamics in water management, river basin governance, implementation of water management, and the politics of water governance.

The complexity of current water resource management poses many challenges. Water managers need to resolve a range of interrelated water dilemmas, such as balancing water quantity and quality, ground water depletion, flooding, drought, and maintaining biodiversity and ecological functions and services, in a context where human beliefs, actions and values play a central role. Furthermore, the growing uncertainties of global climate change and the long-term implications of management actions make the problems even more difficult.

In terms of inland surface and ground water resources, the district is much better than many other districts in the province. In addition, this is one of two coastal districts in Balochistan. Despite its arid climate, Lasbela District is endowed with many water bodies including rivers, streams, lakes, reservoirs, estuaries, the famous Sonmiani Bay and lagoons. The important rivers in the district include Hub, Porali, Hingol and Windar.

The Mor range and Khude are surrounded by Sman Branch of Kolachi River on the south, Hub River on the east and Gidar Dhor River on the west. Valleys of the Kharari or Kanrach and the Mithri, Mohbar and Chebechi torrents are situated in the south. From its entrance into Lasbela district, the Porali River runs over a stony course and has low banks as far as Mangia, where it passes through clay soil. A dam has been constructed at Shah Lakhra. About 89 km downstream of the dam, a branch of the Porali River, known as the Titian River, takes off and eventually flows into the Siranda Lake. There are numerous streams and water channels at the head of the valley above Bela.

The two current new mega developments in the water sector in the district are the construction of Windar Dam and Hingol Dam. The feasibility and planning of the former is complete and the same is being worked out for the latter (the earlier feasibility was rejected due to negative impact on *Hinglaj Maata/Nani Mandar*). There is additional potential for water development. However, such developments have diverse social, economic and environmental negative impacts upstream and downstream. It is important that the negative impacts are eliminated or mitigated and the benefits are maximised by conducting and evaluating environmental impact assessments (EIAs), and through the development,

implementation and monitoring of Environmental Management Plans (EMPs).

As mentioned earlier, the situation of ground water in most parts of the district is better, with the exception of the coastal areas, but rapid depletion of ground water has started where intensive tube well irrigation is practiced for cultivation of banana, vegetables and other high delta crops. Ground water depletion and pollution have emerged as recent concerns in the industrial areas of Hub, Windar and Marble City. The new Uthal-Bela Industrial Estate being developed at the Zero Point of the Makran Coastal Highway is also likely to face these issues if adequate environmental safeguards are not taken.

The use of irrigation water is generally high per unit area and is quite inefficient due to significant wastage. This has implications not only for ground water depletion but also for extra consumption of electricity or diesel for tube wells and increase in cost of production.

This allocation is quite inadequate considering the potential for water development through mega projects in the district.

## Key Issues

- Increasing demand for water due to increasing human and livestock populations, expansion of agriculture, industrial use of water, and indiscriminate abstraction of groundwater resources with tube wells for high delta orchards, e.g., banana and vegetables.
- Lack of water conservation (reduced recharge, ground water mining, inefficient use and water pollution). The reduced recharge of groundwater is due to destruction of vegetation cover and degradation of forests, rangelands and other watersheds.
- Inefficient irrigation practices and water use (high efficiency irrigation systems not adopted). There is also inefficient use of water for *Sailaba* (flood irrigated) and *Khushkaba* (rain fed) farming systems.
- Economic incentives through subsidised flat rate electricity tariffs for agricultural tube wells, which encourage excessive pumping, create a financial resource

- gap to the provincial exchequer, and inequity in favour of the “haves”.
- Pollution of water bodies and ground water due to untreated discharge of sewerage and untreated industrial effluents.
  - Brackish ground water in the coastal areas and severe problem of water supply for drinking.
  - Long drought periods, such as from 1998-2004, which result in negative impact on the availability of water and livelihood of rural communities.
  - Inadequacy and unreliability of data is one of the major factors affecting the planning, development and management of water resources.
  - Lack of coordination among water, housing and planning. municipal, agriculture, forest, wildlife and rangeland, fisheries, and tourism agencies and industry.
  - Lack of an integrated approach to natural resource management and project planning and implementation.
  - Inadequate and ineffective monitoring and evaluation of projects.
  - Lack of political will to conserve, develop and manage water resources sustainably.
  - Lack of recovery of user charges for water for drinking, irrigation and industry.
  - Lack of or inadequate and ineffective participation of stakeholders, especially water users, in planning, managing and using water.
  - Institutional set-up and constraints that restrict effective management of water resources.
  - The issues, policies and strategies for the water sector are extracted and adapted from the draft National Water Policy for the district in Table 8:

**Table 8: Issues, Policies and Strategies for the Water Sector**

Issue	Policy	Strategy
<b>Drainage and Reclamation</b>		
Water logging.	Drainable surplus at source will be minimized through improved irrigation practices and reuse of drainage effluents wherever feasible.	Waterlogged areas will be properly identified and better irrigation practices will be adopted.
Build-up of salts in irrigated areas.	On-farm drainage on agriculture lands, salt leaching, use of chemicals (e.g. Gypsum) and biochemical techniques will be promoted.	Line water canals will be built with priority given to saline areas.
Inadequate drainage interventions	Promote salt-tolerant crops.	Participation of beneficiaries in cost-effective technologies will be encouraged and financial support will be provided wherever feasible.
		Feasibility studies for the disposal of saline effluent, preferably locally, and to the sea only when unavoidable will be expedited, and the requisite infrastructure will be constructed.
		No project shall be undertaken in saline ground water areas, unless safe disposal of effluent is possible.

Issue	Policy	Strategy
<b>Equity and Water Rights</b>		
<p>Inequitable distribution of water</p> <p>Lack of managerial efficiency</p> <p>Lack of transparency and accountability in provision and withdrawal of water</p>	<p>Water rights as specified in various laws and agreements will be fully respected and enforced.</p> <p>Training, capacity building and institutional reforms in the water sector will be supported.</p> <p>Equitable distribution of water to facilitate authorized supply at canal tails will be ensured.</p>	<p>Stakeholders' participation in distribution through formation of Farmers' Organizations (FOs), etc. will be encouraged</p> <p>Periodic water audits will be conducted.</p>
<b>Research and Development</b>		
		<p>Adoptive and problem oriented research will be encouraged.</p>
<b>Integrated Planning and Development of Water Resources</b>		
<p>There will be a non-integrated approach towards water resource planning and development.</p>	<p>The principles of Integrated and Unified River Basin Development will be adopted to ensure that all aspects of decision making for water resource development are taken care of on a holistic basis.</p> <p>It will be ensure that water resource plans take a balanced approach to integrated development across all sectors.</p>	<p>Water budgets for basins, sub-basins and each canal command will be prepared to ascertain availability for all requirements and additional development potential for surface water, groundwater and rainfall harvesting.</p> <p>Development Plans for each area for all water uses will be prepared. The Development Plans will also take into account environmental aspects.</p> <p>Traditional means of irrigation such as karezes, wells, ponds, small dams, check dams, etc. will be rehabilitated and sustained.</p>
<b>Improving Water Management</b>		
<b>a) Water related Laws</b>		
<p>Lack of updating of water related Acts and Laws.</p>	<p>Tube well installation regulations to check groundwater depletion will be updated.</p>	<p>Tube well installation regulations will be reviewed and revised.</p>
<b>b) Training</b>		
<p>Lack of human resource training in water management.</p>	<p>All categories of personnel and farmers involved in water management and use will be trained.</p>	<p>The plan will cover training in information systems, sectoral planning, project planning and formulation, project management, operation of projects and their physical structures and systems, and the management of water distribution systems.</p>

Issue	Policy	Strategy
<b>c) Stakeholders' Participation</b>		
<p>Lack of stakeholders' participation in development, management, operation and maintenance of water resource development and management projects</p>	<p>An enabling environment for active stakeholders will be created, with consultation and participation at all levels and in all aspects of water resources including irrigation, drainage, domestic water supply, flood protection, drought mitigation, waste water treatment and pollution control.</p> <p>Initial focus will be placed on water users' involvement in:</p> <ul style="list-style-type: none"> <li>● Water distribution to ensure that all members receive their due share of water</li> <li>● Periodic maintenance</li> <li>● Assessment and collection of water charges</li> <li>● Monitoring water and soil quality</li> <li>● Controlling pollution and wastage</li> <li>● Resolution of local disputes among members</li> <li>● Coordination of participatory programmes with policies and programmes of all other public and private bodies to encourage partnership and avoid conflict.</li> </ul>	<p>A strategy will be developed to engage stakeholder participation in all aspects of the water sector.</p> <p>Management practices will be promoted that will enable community participation in the construction, operation and maintenance of water infrastructure.</p> <p>Farmers' Organizations will be organized and involved.</p>
<b>d) Sustainable Water Infrastructure</b>		
<p>Lack of physical and financial sustainability of infrastructure</p>	<p>Water-related infrastructure will have physical and functional sustainability.</p> <p>Engineer, construct and operate the accessory infrastructures of the Hingol and Windar dams so that each component serves its purpose without undue wastage of water.</p>	<p>Existing water right disputes will be settled by improving the design of water distribution structures, especially in Lakhra Tehsil.</p> <p>Field investigations and required studies will be carried out before designing any project. The safety and sustainability of all new infrastructures will be a prerequisite. The existing infrastructure will be evaluated for its sustainability and undertake necessary remedial work will be undertaken.</p>

Issue	Policy	Strategy
		<p>The National Dams and Barrages Safety Council will carry out periodic inspections of all vital infrastructures</p> <p>Each agency in charge of infrastructure will carry out relevant, periodic inspections.</p> <p>Each relevant agency will prepare and update Inspection Manuals specifying the interval of each inspection, inspection procedures for each type of infrastructure and the authorities responsible for remedial action.</p>
<b>e) Financing for Water Sector</b>		
<p>Inadequate budgetary allocation for water sector</p>	<p>PSDP allocation and other fiscal measures will be enhanced.</p>	<p>All resources including donor financing will be tapped.</p> <p>Water charges/service fees will be introduced and rationalized to reduce resource gaps.</p> <p>Recovery rates will improve.</p>

The Integrated Water Resources Management (IWRM) Policy<sup>32</sup> provides a solution to the problems and issues in the short, medium and long terms. 16 policy areas have been identified by the Balochistan Resource Management Programme (BRMP) for the IWRM Policy (Box 5).

**Measures**

1. Awareness of water conservation against pollution, wastage, inefficient use and over exploitation will be raised.
2. Staff competencies will be developed and water-related public sector agencies, NGOs, and CBOs in various aspects of water conservation, planning, management and monitoring will be strengthened.
3. Institutional weaknesses such as sectoral isolation, e.g., inadequate planning and IWRM Policy implementation, and lack of involvement of relevant public sector agencies and communities for operation

and maintenance of water schemes will be addressed.

4. Excessive irrigation will be avoided and irrigation will be adjusted according to the specific crop requirement. Cropping patterns and practices, e.g., promotion of low delta crops and fruit plants in areas affected by ground water depletion will be adjusted.
5. Irrigation and Agriculture Departments and beneficiary communities will work together to discontinue inefficient irrigation and promote high efficiency irrigation systems for agriculture by raising awareness, providing technical support service and economic incentives, developing rainwater harvesting, and harnessing torrents on scientific grounds for agriculture and other uses.
6. Watershed and water recharge programmes will be launched in the catchment areas of water stressed basins and sub-basins, and the appropriate

32 Government of Balochistan. Department of Irrigation and Power. Integrated Water Resources Management Policy. Quetta: GoB, 2005.

### Box 5: Areas of Balochistan IWRM Policy

- 1) Water availability and potential for development
- 2) Water resource assessment and monitoring
- 3) Managing water demand
- 4) Linking water development with IWRM approaches
- 5) Applying IWRM to agriculture
- 6) Adjusting crops and cropping patterns with water availability
- 7) IWRM for other sub-sectors (non-agricultural) of water use
- 8) Environmental water management,
- 9) Cost recovery of irrigation infrastructure
- 10) Electric tariff for tube wells
- 11) Cost-effectiveness of water conservation interventions
- 12) Promoting inter-provincial cooperation,
- 13) Fostering participation
- 14) Institutional restructuring and strengthening
- 15) High efficiency irrigation systems
- 16) Groundwater development and management

design of delay action dams (DAD) for effective and long-term recharge will be used.

7. Sewage and industrial effluents will be treated before dumping or discharging into water bodies.
8. The potential of Porali River for developing dams for water storage and water development for agriculture will be explored.
9. Watershed management programmes will be extended to all other river basins and sub-basins.

## 6.3 Forests

The National Forest Biodiversity Vision 2030 states that “By 2030, Pakistan will be managing all types of forests on the ecosystem approach, enabling them to perform potential functions of conserving biodiversity, providing sustainable livelihood to dependent communities....”

Forests are vital for the environmental and for maintaining the ecological balance. They play

an important role in the supply of wood and non-wood products including water, grazing, medicinal and aromatic plants (MAP); maintaining watersheds, wildlife habitats and the dependent species of wild animals and plants, control of erosion and conservation of soils, sequestration of carbon and provision of countryside recreation and ecotourism.

Mangrove forests are critical components of the deltaic ecosystem and provide a complex habitat structure for numerous juvenile fish species. In addition to providing an essential habitat, they stabilize near shore sediments and help mitigate coastal erosion. They also interrupt freshwater discharge, and are sinks for organic and inorganic materials as well as pollutants. Highly dense mangrove forests also play a protective role against sea surges and coastal storms. Awareness about the ecological functions and value of mangrove ecosystems is low among decision-makers and communities.

Generally, the terrestrial vegetation of Lasbela District is scanty and consists of xerophytes including the thorny *Euphorbia nerifolia*, *Caragana polyacantha*, and *Convolvulus spinosus*. Seasonal rivers, streams, and gorges as in the mountain areas of Hingol

National Park (flora described in Section 5.9.1), and small valleys, such as *Bilawal* in the Pub mountains have more vegetation including tree species. Their lifeline is rainwater or water springs. *Fagonia arabica*, *Acacia rupestris*, *Astragalus spp.*, *capparis aphylla*, bushy and leafy *Salsola spp.*, the stiff leaved fan palm or *mazri* palm, and the rigid tamarisk (kirri) also grow naturally in the district. Mesquite, an exotic species that is bushy in shape, has spread over large areas in the south-eastern parts of the district. These plants are exceptions in the prevailing barren landscape.

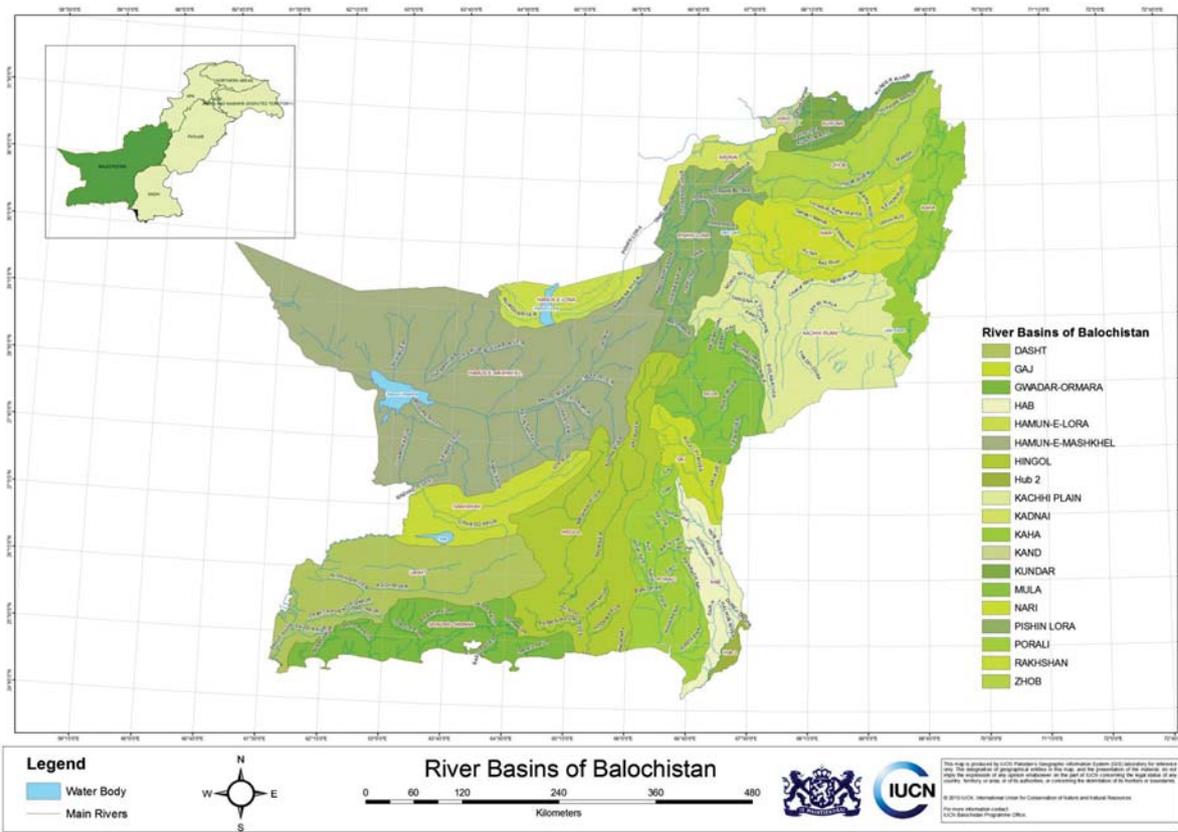
The coastline of Pakistan spans a total length of 990 km, of which 241 km is in the province of Sindh and 660 km in the province of Balochistan (IUCNP 2005), spread in Lasbela and Gwadar Districts. Mangrove swamps are only found in Sonmiani Bay or Miani Hor. The SUPARCO study in 2003, using SPOT imagery, suggests that Miani Hor contains about 3,409 ha of mangrove forest, i.e., about 84 per cent of the total mangrove area (4,059 ha) in Balochistan, which in turn is 4.68 per cent of mangrove forests in Pakistan (86,731

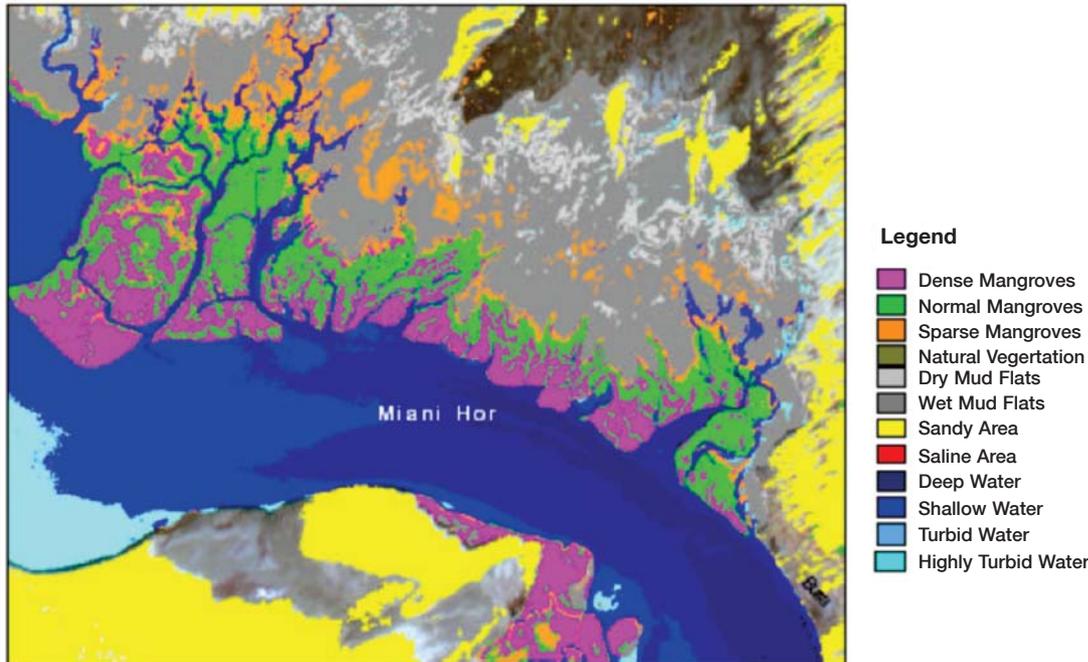
ha). The area of mangrove forests in Miani Hor, which has been designated as protected forest is 8453 ha (details in Table 12).

This tidal lagoon is about 50 km long and 20 km wide and its total area is 363 km<sup>2</sup>. The Porali River and its distributaries drain into it. The lagoon changes greatly between high and low tides and typically the area comprises of narrow twisting channels with steep mud banks visible at low tide, surrounded by numerous flat islets of mud covered with mangrove trees. *Avicenia marina* (Timmer), *Rhizophoras mucronata* (Kumri) and *Ceriops tagal* (Kain) are three common species of mangroves present in the lagoon. In fact, the lagoon is the only area on the coast of Pakistan that can boast of a naturally existing stand of *R. mucronata*. The enhanced satellite colour image of Miani Hor is shown in Figure 3. On this map, dense mangroves are shown in magenta, normal mangroves in green and sparse vegetation in orange.

The legally designated forests in Lasbela District are listed in Table 9. Most of these are tropical thorn forests followed by rangelands, 2000

### River Basins of Balochistan



**Figure 3: Mangroves Cover in Sonmiani Bay (2003)**

Satellite Image by SUPARCO

acres of mangroves forests, and riverine (bela) forests. Some of these, including Dureji (a game reserve) and Sonmiani Bay (a Ramsar Site), have also been designated as wildlife areas.

There are three villages along the Bay, namely Sonmiani, Bheera and Damb. A synopsis of the forests in Lasbela District, designated as “Protected Forests”, is given in Table 9.

Some forest areas in Quetta, Sibi and Lasbela Districts were de-notified for conversion to other land use in the province.<sup>33</sup> 81 ha of Chichai Protected forest (PF) and 405 ha of Joria PF were transferred to Industrial Estate and 22 ha of Gadani State Forest were transferred to the Prison Department. The Province did not accept the demand of two Defence agencies for transfer of a large area of Hingol NP in the recent past.

None of the forests in the district or even in the province (state owned, communal or privately held) are capable of sustained exploitation of wood on a commercial scale. Rather, these are serving to meet the subsistence requirements of local communities for forest products, irrespective of legal rights. Conservation of biodiversity

and sustainability of forests do not receive any consideration by the communities. Forest Management is exercised by the Forest Department through “protection” as per the Pakistan Forest Act, 1927.

Problems hindering the Department are low pay and insufficient training for their staff. The biodiversity and environmental aspects (water recharge, soil conservation, safeguard against floods, sea erosion, fish nursery function, protection against cyclones and tsunamis, countryside recreation and tourism, carbon sequestration) and meeting the subsistence needs of local communities are more important than developing wood and non-wood forest products (NWFPs) for commercial exploitation or even for local livelihoods. Nevertheless, these aspects could receive priority, attention and acceptance if the communities have access to alternative sources of wood and NWFPs from forests to meet the consistently increasing demand.

### Key Issues

- The reduction of freshwater and silt flow downstream the proposed dams (Windar Dam and a dam on the Porali

33 WWF-P. “Conversion of Forests to Non-Forestry Uses in Pakistan.” ([http://www.wwfpak.org/newsroom/250610\\_shockingforestland.php](http://www.wwfpak.org/newsroom/250610_shockingforestland.php))

River) will impact the health of mangroves in the Sonmiani Bay and the construction of Hingol Dam will have serious adverse impacts on the ecology of the Hingol estuary and the related subsistence fisheries.

- The changing patterns of marine deposition will cause encroachment by sand of mangrove forest areas and reduction in coastal productivity.
- Pressure on mangroves will be enhanced due to the rapidly growing population in the three villages along the Bay to meet their requirements of fuel wood, fodder, timber, grazing, thatching material, etc.
- Over-exploitation of forests and vegetation in the rangelands and outer countryside, resulting in their deforestation and degradation.
- The processes of regeneration, reforestation and new plantations are very slow, if any.

- Ineffective law enforcement and low penalties for forest offences.
- Charcoal-making is practiced in the district, which is adding pressure on the existing vegetation.

### Measures

1. It will be ensured that all forest management is centred on participatory planning and decision-making.
2. Capacity of forest staff and all other stakeholders will be developed to orient them to the new approaches of forest management.
3. Capacity of forest staff and local people will be developed on participatory management, through site specific and needs-based training programmes.
4. Capacity of farmers and fishermen in agro-forestry, mangrove planting and for nursery raising will be developed.

**Table 9: Designated Forests in Lasbela District**

Sr.	Forest/ Legal Status	Notification	Area
1	Wingoi PF <sup>34</sup>	No. SOFT-XI(167)63 dated Oct.2, 1963 <b>Rights:</b> Free from rights	7,040 acres
2	Awara PF	No. SOFT-IV(Agri)-XVIII-2/ WP-I dated Dec.3, 1964 <b>Rights:</b> The Existing rights of communities and individuals over the said lands shall not be abridged or affected.	30,080 acres
3	Chichai PF (Hub)	No. SOA/FST/1-14/70 dated Nov.3, 1970	30,710 acres
4	Pir Sawai PF (Uthal)	No. SOFT(Agri)-XVIII-2/ 64-III dated Feb.9, 1965	63,360 acres
5	Khurkhera PF (Sonmiani)	No. SOFT(Agri)-XVIII-2/ 64-III dated Feb.9, 1965	45,312 acres
6	Porali PF (Bela)	No. SOFT(Agri)-XVIII-2/ 64-III dated Feb.9, 1965	2,000 acres
7	Dombi PF (Uthal)	No. SOFT(Agri)-XVIII-2/ 64-III dated Feb.9, 1965	47,550 acres
8	Joria PF (Uthal)	No. SOFT(Agri)-XVIII-2/ 64-III dated Feb.9, 1965	16,000 acres
9	Dureji PF	No. SOFT(Agri)-XVIII-2/ 64-III dated Feb.9, 1965	63,200 acres
10	Catchment area of Hub River and its embankments (Dureji)	No. SOFT(Agri)-XVIII-2/ 64-III dated Feb.9, 1965	87,040 acres
11	Pir Hayat PF Mangrove (Sonmiani)	No. SOFT(Agri)-XVIII-2/ 64-III dated Feb.9, 1965	530 acres
12	Guru Chela PF Mangrove (Sonmiani)	No. SOFT(Agri)-XVIII-2/ 64-III dated Feb.9, 1965	20,350 acres

Source: Balochistan Forest & Wildlife Departments

5. Social mobilisation will be encouraged and village-level organizations will be supported for participatory forest development through a consultative, participatory process.
6. Communities will be involved in the protection and management of state forests including control on illegal cutting, grazing, etc., through legal cover and formal agreements. Village participatory forest management plans for the areas outside state forests will be developed and implemented.
7. Institutional reorientation and strengthening of the Forest & Wildlife Department and capacity building of Department staff will be ensured.
8. Early enactment, compliance and enforcement of the new Draft Forest law that was developed through a consultative process will be ensured.
9. The role of the private sector, NGOs, CBOs and communities with adequate legal coverage will be enhanced.
10. Two management plans will be developed and implemented, one for all terrestrial forests and the other for mangroves in the district.
11. Alternate sources of livelihood for forest-dependent communities will be promoted.
12. Import of timber from outside the district without imposition of local taxes will be encouraged.
13. Alien invasive species will be eradicated wherever possible.
14. Watershed management will be launched in the catchment areas of Hub Dam, Windar Dam, Hingol Dam and other future mega dams in the district; the construction cost of the dams will include the cost of watershed management.
15. Farmland planting will be promoted with economic incentives and technical support, and farming communities will be mobilized.
16. A percentage of land in the command areas of new dams for planting will be earmarked, with adequate water allocation.
17. The ecology of degraded forests will be restored by planting the maximum number of trees of appropriate native species, and their maintenance and protection will be ensured by using improved techniques of regeneration.
18. Appropriate concepts and practices for ecosystem approaches for forest management will be promoted.
19. Energy efficiency will be enhanced through promotion of fuel-efficient stoves and provision of alternate energy sources such as biogas.
20. WAPDA and the Karachi City District Government/Sindh Government will be approached to fund watershed management programmes in the catchment areas of Hub Dam.
21. Landowners will be motivated to retain sufficient numbers of trees (about 70 per acre) while converting forested areas for agriculture or other purposes.
22. Charcoal making will be discouraged by bringing it under the tax regime.
23. A provincial forest, wildlife, wetlands and ecotourism policy will be developed to support forests and forestry, and conservation and sustainable use of wildlife and wetlands in the province.
24. All forests will be managed for biodiversity values and environmental functions, and subsistence use by local communities will be accommodated to the extent of sustained productive capacity.
25. It will be ensured that the major share of revenue from natural forests is generated from non-wood forest products, ecotourism, water production, carbon sequestration and income from protected areas.
26. Sustained supplies of timber and fuel-wood from commercial plantations and farm forestry will be obtained from appropriate native species.
27. Commercial forestry will be limited to farmlands and commercial plantations.

**Table 10: Protected Areas in Lasbela District**

Established to Protect	Current Status	Remarks
<b>Hingol National Park (HNP)</b>		
All native flora, fauna, habitat, ecosystems and landscape, in particular the marine/ estuarine and terrestrial fauna such as Marsh crocodile, Olive Ridley and Green Turtles; Marsh crocodile, Masheer fish, houbara bustard, Dalmatian pelican, Spot-billed pelican, Plumbeous and other sea dolphins, Sindh Ibex, Urial, Chinkara, Pangolin, Leopard, etc.	The original area of the park was 165,000 ha. Park boundaries were extended in 1997 by the Government of Balochistan under the Balochistan Wildlife Protection Act, 1974, to cover about 619,043 ha. It includes the Hingol Estuary and offshore waters to a depth of 5 fathoms. Limited law enforcement by Forest Department and Coast Guards. Management Plan is being finalized. Significant improvement has been seen in the management of key species (e.g., Sindh Ibex) of HNP due to implementation of PAMP by the BF&WD.	<ul style="list-style-type: none"> <li>● Important fishery in its marine area</li> <li>● Ranked as a protected area containing globally important ecosystems and species, excellent lowland and mountain desert panoramas. About 3,000 people live inside or in villages adjacent to park boundaries.</li> <li>● Indiscriminate hunting of Ibex, Urial, Chinkara and Crocodile by influential persons and government officials has reduced significantly during the implementation of the Hingol NP component of the GEF/WB/GoB funded "Protected Areas Management Project (PAMP)".</li> </ul>
<b>Khurkhera Game (Wildlife) Sanctuary</b>		
Chinkara	Notified.	No wildlife in the area.
<b>Dureji Game Reserve</b>		
Sindh Ibex, Blandford's Urial, Chinkara Gazelle, and Marsh crocodile.	Area was never managed as a game (wildlife) sanctuary. It was re-designated as a game reserve in 1998 by the Government of Balochistan under the Balochistan Wildlife Protection Act, 1974.	<ul style="list-style-type: none"> <li>● Viable wild animal populations still exist.</li> <li>● A large area is in use for grazing, agriculture, settlements, communication infrastructure, and mining.</li> <li>● The Forest Department has de jure ownership.</li> </ul>
<b>Sonmiani Ramsar Site</b>		
Dry tropical mangrove ecosystem including mud flats with associated species including sea dolphin species, waterfowl and other wildlife	Notified as a Ramsar Site by the Government of Pakistan on 10 May, 2001	<ul style="list-style-type: none"> <li>● Largest mangrove ecosystem on the Balochistan Coast with more diversity in mangrove species than the mangroves on the Sindh coast</li> </ul>
<b>Hub Dam Ramsar Site</b>		
Migratory waterfowl and Mahsheer fish species	Notified as a Ramsar Site by the Government of Pakistan on 10 May, 2001	<ul style="list-style-type: none"> <li>● Reservoir built on Hub River, mainly to supply drinking water to Karachi and Hub town. Water also used for agriculture and industry.</li> </ul>

Source: Ramsar Convention Publications



Marsh Crocodile at Hingol National Park

## 6.4 Wildlife and Protected Areas (PAs)

Lasbela District is rich in biodiversity including terrestrial, fresh water, coastal and marine species. The protected areas (PAs) include Hingol National Park, Dureji Game Reserve, Khurkhera Game (Wildlife) Sanctuary, and the Ramsar sites of Sonmiani Bay/Miani Hor and Hub Dam. The key species found in these protected areas are listed in Column 1 of Table 13.

### Protected Areas in Lasbela

1. Hingol National Park (HNP) was established in 1997 over 619,043 ha by including the area of Dhrun Wildlife Sanctuary (since 1988). It is situated in Lasbela, Gwadar, and Awaran Districts and comprises terrestrial and marine areas.
2. Khurkhera Game (Wildlife) Sanctuary was established in 1972 over 18345 ha.
3. The Dureji Game Reserve<sup>3</sup> was established over 178259 ha in 1998 by downgrading its previous status of Game Sanctuary,

which it had enjoyed since 1972. This was to accommodate exploitative uses of oil and gas exploration, trophy hunting, mining, cultivation, presence of a large settlement, and a significant area that was privately held and cultivated.

4. Sonmiani Ramsar Site – a coastal wetland of international importance for migratory birds.
5. Hub Dam Ramsar Site – a fresh water reservoir wetland of international importance for migratory birds.

Some important information regarding these is provided in Table 10 below.

There is no specific provincial biodiversity, wildlife and PAs policy for comprehensive direction or guidance. The Biodiversity Action Plan for Pakistan (2000) and the National Forest Biodiversity Vision 2006 of the Ministry of Environment are, however, useful. Their implementation in Lasbela District is comparatively better due to implementation of PAMP in HNP. The 1974 wildlife law is outdated but it has been revised recently and is expected to be enacted by the Provincial Assembly in the near future.

The punitive wildlife protection approach has failed to halt the decline of wildlife and degradation of PAs due to the alienation of local communities, the punitive nature of the wildlife law and its lack of enabling provisions, as well as weak enforcement. However, the successful community conservation initiative of the Society for Torghar Environmental Protection (STEP) and SUSG is an example of community involvement in public sector wildlife initiatives such as PAMP.

### 6.4.1 Flora

The vegetation of Lasbela District is Saharo-Sindian type. Overall species diversity is generally low but better in the relatively moist, deeply incised mountain valleys and northern slopes of mountains and higher altitudes. The total number of plant species so far listed in HNP is about 150. Several endemic species and species with limited distribution belong to the general *Tamarix* and *Heliotropis*.

The floral species include *Tamarix sultanii*; *Arthrocnemum sp.*, *Urochondra setulosa*, *Prosopis juliflora*, *Prosopis cineraria*, *Acacia nilotica*, *A. jacquemontii*, *Capparis deciduas*, *Haloxylon sp.*, *Aerva javanica*, *Suaeda sp.*, *Heliotropium sp.*, *Grewia domaine*, *Alhaji camelerum*, *Salvadora oleoides*, *Zizyphus nummularia*, *Acacia jacquemontii*, *Calligonum polygonoides*, *Rhazya stricta, sp.*, *Heliotropium sp.* and *Aerva javanica*, *Euphorbia caducifolia*, *Haloxylon sp.* (two types, one with white flowers and the other with pink flowers), *Commiphora mukal (gugul)*, *Heliotropium sp. (merin)*, *Aerva javanica (Gujo)*, *Inula montaine (kulumurak)*, *Grewia domaine (chill)*, *Myro (A leguminous small bush)*, *Rhazya stricta*, *Acacia senegal*, *Capparis aphylla*, *Aerva javanica*, *Inula grantoides*, *Alhaji cameleron*, *Leptodenia sp.*, *Lasiurus sp.*, *Cymbopogon sp.*, *Panicum sp.* and small leguminous bush. The main grass species were *Panicum spp.*, *Lasiurus sp.*, *Cenchrus sp.*, *Aristida sp. (Nadak)* and *Chrysopogon sp. (Boch)*.

The species endemic to Makran coastal areas and found in the HNP in Lasbela District are *Cadaba farinosa ssp. Rariflora*, *Gypsophylla mekranica*, *Heliotropium alii*, *H. Ophioglossu*, *H. remotiflorum*, *H. Lamondiae*, *Lotus mekranicus*, *Matthiola macranica*, *Psammogeton stocksii*, and *Viola mekranica*. The invasive alien species in the HNP are relatively very few so far, and the only species

of major concern is Mesquite (*Prosopis juliflora*).

### 6.4.2 Fauna

The situation regarding the species of wild animals found in Lasbela District can be understood from the information documented in the Management Plan of HNP for two reasons

- It has been studied comprehensively; and
- The park has the maximum diversity of habitat and species in the whole district.

**Mammals:** About 30 mammal species are present, indicating that the park has a relatively high diversity of species given its desert environment. However, the population of a number of species is critically low including for Wolf, Leopard, Hyena, and possibly Caracal and Honey Badger. The populations of Chinkara are also vulnerable, and there has been no recent sighting of the Desert Wolf in the park. The status of urial, chinkara, desert wolf, leopard, caracal, hyena, wild boar, and honey badger needs to be studied in more detail.

The IUCN Red List of mammals for Pakistan includes many mammals of HNP. A list of threatened (status on the IUCN Red List) mammals found in the district is given in Annex III.

Many species in HNP have become vulnerable due to fragmentation of habitats. The range of species has also reduced due to construction of the Makran Coastal Highway (MCH), since highway crossings pose a threat to the animals' lives. Their access to the water points located in the vicinity and across the MCH has been jeopardized and their vulnerability to hunting has increased due to the easy access provided to hunters by the MCH. The threats to the species and their habitats will grow with more and more development along the MCH.

Fortunately, many culverts and bridges constructed on the MCH in HNP for storm water drainage serve as crossing passages for wild animals, although their vulnerability to predators increases while crossing. Some culverts, however, require broadening for

providing ease of crossing to wild animals, especially in the 1.4 km section of the MCH from Kund Malir Fish Market towards Ras Malaan.

**Birds:** According to the HNP Management Plan, the total number of species listed thus far for HNP is 185. The species diversity of the Park is relatively high for a desert area due to the diversity of habitats including sea, coast, estuaries, mudflats, desert, riverines and mountains up to 1580 m. The largest number of species is found on the seacoast, the estuary and along the Hingol River and its tributaries. The major groups among these are seagulls, terns, pelicans, flamingos, herons, egrets, plovers, lapwings, stints, sandpipers, godwits, shanks, coots, curlews, kingfishers, osprey, etc. The typical desert-related bird groups (low populations) include wheatears, common babblers, larks, sand grouses, partridges, the houbara bustard, some shrikes and buntings. Birds of prey include eagles, vultures, hawks, buzzards, and falcons.

Bee-eaters, hoopoes, seed eaters such as pigeons and doves, birds with a more varied diet such as white-eared bulbuls, sparrows, the brown-headed raven, shrikes, pigeons, owls, nightjars, woodpeckers, rollers, swallows, martins, wagtails, chats, robins, warblers, white-throats, flycatchers, sunbird, drongo, mynas, sparrows, and buntings are also found.

Some bird species, such as house sparrows, silver bells, white-eared bulbuls, buntings, common babblers, white throated and brown-headed raven, profit from cultivation. Trees of Kandi (*Prosopis glandiflora*), Kikar (*Acacia nilotica*), and Ber (*Zizyphus mauritiana*) attract fruit-seed eating birds such as the white-eared bulbul, lesser white-throats, house sparrows and others. They also provide nesting sites for many bird species.

Blossoms and fruits of trees such as *Salvadora spp.* and *Capparis decidua* usually attract several bird species including the purple sunbirds *Nectarinia asiatica*. These trees are however scarce and have decreased in number as a result of cutting for domestic needs. It is assumed that the MCH had significant negative impact on flora due to cutting of trees while it was being constructed.

The Brown-headed Raven *Corvus rufficollis* is a restricted range species and HNP is its extreme limit. The Sooty Falcon may be breeding in HNP. At least half of the bird species listed for the park are migratory; the Park is part of the “Asian Flyway”. They arrive in autumn (Aug-Nov) and return in spring (Feb-May). Egrets and Herons stay in the park for the entire winter.

The largest concentrations of migratory birds can be found at the Hingol estuary<sup>35</sup> and lower Hingol River plains. The species include great white pelicans, spot-billed, Dalmatian pelicans, great cormorants, little cormorants, western reef egrets, little intermediate and great egrets, purple and grey herons, black ibis, spoon bills, ducks (Eurasian wigeon, gadwall, common teal, and northern shoveler), and 40 other species including great stone plover, whimbrel and Eurasian curlew. Terns and gulls can also be found in large numbers.

Spot-billed and dalmatian pelican, the Pallas fishing eagle, the eastern imperial eagle, sociable plover, houbara bustard, vultures, saker falcon, black ibis and black-tailed godwit are the bird species of major conservation interest, and are listed in the IUCN Red Data Book.

**Amphibians and Reptiles:** A total of 64 amphibian and reptiles are listed from a part of the HNP, close to MCH. These included 2 toad, 1 frog, 4 sea turtle, 30 lizard and 27 snake species of which 9 are sea snakes. There are no tortoises.

The reptilian fauna of Hingol shows good representation of the restricted range species (e.g., *Laudakia melanura lirusnasiri* black rock agama, *Trapilis agilis* brilliant agama), *Crossobamon orientalis* yellow sand gecko/Sindh gecko, *Cyrtopodion kachhensis* warty rock gecko/kachh spotted ground gecko), *Bufo olivaceus* olive toad, *Laudakia fusca* yellow-headed agama and *Acanthodactylus micropholis* yellow-tailed sand lizard).

The snakes are represented mainly by poisonous kraits and snags (16 species) and non-poisonous coluber snakes (8 species). The kraits and snags include 7 terrestrial snake and 9 sea snake species. The terrestrial snakes include the common krait, cobras (the

common cobra and the brown or oxus cobra) and four species of viper. The *Echinatus carinatus sochurecki* saw-scaled sand viper and the *Pseudocerastus persicus* horned viper are both common in the Park.

The park harbours large reptiles including the “vulnerable” marsh crocodile or mugger *Crocodyles palustris* and two monitor lizards, the Bengal *Varanus bengalensis* and the grey monitor lizard *Varanus griseus*.

Four of the worlds’ five globally endangered sea turtles including the loggerhead turtle, green turtle, hawksbill turtle and olive ridley turtle have been reported from the beaches in the park.

Amongst the amphibians are two toad (*Bufo stomaticus*, *Bufo olivaceus*) and one frog species (*Euphylyctis c. cyanophlyctis*).

The reptile species of major conservation interest in the park include sea turtles and the Marsh crocodile. Probably only two species, the endangered green turtle (*Chelonia mydas*) and the endangered olive ridley (*Lepidochelys olivacea*) visit the Sohor Chakuli beach between Kund Malir and Malan. One colony of about 20 endangered Baloch Spiny-tailed Lizards (*Uromastyx hardwicki*) is known to exist in the park in the Sangal coastal plains. Monitor Lizards (*Varanus species*), Russels’ Viper/Royal snake and cobras are of National Conservation Interest. These are trapped for their skin; the latter also for its poison to make anti-snakebite serum. The terrestrial reptiles are vulnerable when crossing roads, and the MCH may pose life threats to these.

## Invertebrates of the HNP

The invertebrate fauna species of HNP includes beetles, grasshoppers, spiders, butterflies and several species of scorpions.

### Key Issues

- Rapid human population growth and consequential land use change with expansion of settlements and agriculture.
- Industrialisation and development, leading to threats to habitats and species.
- The vital need to plan and manage these inevitable changes with least

adverse impacts on biodiversity, wildlife and protected areas (PAs) is ignored.

- The Federal Government has exempted the Makran Coastal Highway (MCH) from the EIA, though it was a mega project that has impacted on the Hingol National park in Lasbela and Gwadar Districts.
- Several other mega developments envisaged in the district, which will have a negative effect on habitats and species.
- Over exploitation of species, especially due to illegal and unwise hunting, killing and trapping.
- Excessive use of agro chemicals in orchards and vegetables and the introduction of invasive alien plant species (e.g., mesquite).
- Wetland-related issues such as reduction in environmental flows with construction of dams (Hub, Windar and Hingol); sedimentation of wetlands (Hub) and turbidity of water due to soil erosion in the catchment areas; water pollution due to industrial effluents and sewerage (Hub and Porali); eutrophication from detergents in sewerage, e.g., from Hub Town and agrochemicals in run off waters; and introduction of exotic fish species as in the Hub Reservoir.
- A long-term vision, goals and management objectives for these resources with a view to conservation and sustainable use are lacking. Use of these resources currently is, at best, ad-hoc and unscientific.
- No specific provincial biodiversity, wildlife or PA policy to provide comprehensive direction or guidance.
- The institutional framework is generally inadequate, inappropriate and weak. The capacity of the BF&WD to undertake education, training, research, survey, assessment, planning, management, and monitoring of biodiversity, wildlife and PAs is weak as well. It is

comparatively better in Lasbela District, again due to PAMP implementation, but the staff lacks mobility and other facilities to perform their envisioned roles.

- Inter- and intra-agency coordination and interaction with non-state stakeholders (non-government organisations, communities, private sector, research and educational institutions, and the media) are weak.
- The current management of the HNP is not in accordance with the Baluchistan Wildlife Protection Act, 1974 and the existing categories of PAs are insufficient to address such legally invalid but otherwise acceptable uses, within sustainability limits, for ensuring community participation and support.
- The current and potential social, economic, environmental and cultural value of biodiversity, wildlife and PAs is not widely recognised.
- Provincial funding is low and there is lack of political will, resulting in low priority given to wildlife.
- The terms “biodiversity and PAs” are still unfamiliar to most people as well as to politicians and thus have not attracted the attention of decision makers and investment planners.

## Measures

1. Environmental and biodiversity safeguards in land use change will be institutionalized to arrest further loss or degradation of species and habitats as the landscape can change significantly due to rapid population growth, industrialization, and deteriorating food security.
2. Environmental assessment tools such as strategic environmental assessment (SEA) of policies, plans and programmes; and initial environmental examination (IEE) will be used; and environmental impact assessments (EIA) will be conducted of projects and developments that may impact wildlife and PAs adversely. It will be ensured that any potential negative impacts are mitigated or eliminated.
3. It will be ensured that BF&WD plays a proactive role in collaboration with BEPA and development agencies.
4. A comprehensive education and awareness programme will be developed and implemented.
5. The successful models implemented in Torghar, KP, Gilgit-Baltistan and Dureji on community participation through social mobilisation, organisation, awareness raising, capacity building and provision of economic incentives (community-based trophy hunting) will be replicated and institutionalized.
6. Institutional strengthening and capacity building of staff, communities and other stakeholders will be ensured to plan, manage and monitor biodiversity conservation.
7. The Management Plan of HNP will be implemented.
8. Efforts will be made to ensure enactment of the new Wildlife and PAs law.
9. Funding and replication of successes for the work undertaken with PAMP will be ensured in order for it to be sustainable.
10. The Community Fund established for HNP will be managed transparently and an active role for the community to conserve the wildlife of HNP will be guaranteed.
11. Hunters' associations will be formed and supported and their cooperation in sustainable hunting will be encouraged.
12. Development and implementation of the management plans of Sonmiani Bay Ramsar Site and Dureji Game Reserve will be pursued.
13. A GIS-based database will be established.
14. A biodiversity database will be developed along the lines of the GIS-based wetland database, to be maintained by the National Council for Conservation of Wildlife (NCCW) with support from the Pakistan Wetland Programme. This will be used to promote sound scientific planning, management and monitoring of conservation resources. The management

plans of PAs and the recovery and re-introduction plans for endangered and extinct species will be developed and implemented.

15. Over-exploitation and other detrimental practices will be minimized and ultimately eliminated through raising awareness of all user, stakeholder and development agencies; local communities; teachers, students and academia; media, politicians, decision makers and planners.
16. Best practice field models for replication through documentation and dissemination will be established and promoted with economic incentives and technical support. Inter-and intra-agency coordination will improve by changing the composition and mandate of the Wildlife Management Board and making it functional to support these efforts.
17. The Provincial Biodiversity, Wildlife, PAs and Ecotourism Policy will be developed and adapted, which will significantly support wildlife and PAs conservation, sustainable use and management. A new Wildlife and Protected Areas Law has already been developed by the BF&WD for consideration of approval by the Balochistan Assembly.
18. The Biodiversity Action Plan for Pakistan and the National Forest Biodiversity Vision 2030 will be used to develop the action plan for this sector. Both documents provide roadmaps to addresses biodiversity issues including promoting conservation and sustainable use of biodiversity.
19. The management of the marine area of Hingol National Park will be strengthened.
20. A strong and effective set up for wildlife and PAs will be established to conserve the unique natural heritage of the district, with participation of local communities.
21. The conservation-related institutional framework will be strengthened and the competencies, commitment, motivation, objectivity and accountability of staff at all levels will be enhanced. Specialists will be inducted on biodiversity, wildlife, wetlands

and PAs into the BF&WD to ensure proper planning, implementation and management.

22. A Management and Programme Review of the BF&WD will be conducted so that it can revisit its mandate, develop a long term vision, goals, objectives and Action Plan for 5-10 years. The required human and financial resources will be identified so that it can fulfil its mandate.

## 6.5 Wetlands and Fisheries

The vision of the sector is to restore, develop and sustainably use fisheries, in particular coastal fisheries, as a fundamental source of economic growth of the district and province as mentioned in a World Bank Report<sup>36</sup>; and enhance the livelihoods and delivery of social services to fishing communities.

Coastal fishery is widely practiced in Balochistan; freshwater fishery has only been done in the Hub Reservoir by WAPDA, for which Balochistan is a co-beneficiary with Sindh. Exotic fish for commercial netting has been introduced here. This contradicts the principle of preserving native fish fauna, which includes the popular Mahsheer fish from Karachi.

Commercial fishery of exotic fishes is also in conflict with the objectives of managing this wetland of international importance (formerly designated as a Ramsar site by the government of Pakistan), as the wintering of migratory water birds and the fishing period coincide. As a result, water birds, especially ducks and coots, get disturbed and occasionally caught in nets by fishermen. Potential sites for development and management of fisheries resources in the district include the proposed Hub Dam, Windar Dam and Porali River, Malir *Nadi*, Hingol River, Siranda Lake (seasonal but very important for water birds), etc.

The potential of freshwater fisheries in Lasbela District has not been studied yet and should be the first step in developing inland fisheries. Development of fish hatcheries and stocking the potential waters with local fish species also needed to be looked into. Meanwhile, further conflict such as commercial fishing



Trash fish in Dam Bundar

with nets during the wintering period of migratory water birds and introduction of exotic species should be avoided.

## Coastal and Marine Fisheries

District Lasbela's location on the coast enables it to exploit coastal and marine fisheries. The estuaries of all of the rivers mentioned above, Sonmiani Bay or Miani Hoar and the coastal waters up to 12 nautical miles, provide fisheries-related subsistence and livelihood for the people living in the coastal areas of the district.

Only Gwadar District shares this advantage, since the location of the fish landing sites is either close to Karachi (e.g., Sonmiani) or is connected to it (*Sumar Bandar*, *Phor Bandar*, *Sapat Bandar*, *Wadh Bandar*, *Kund Malir*, *Malan Bandar*) since the fish catch is sent to Karachi by the Makran Coastal Highway for sale.

In Gadani, a coastal town of Lasbela District, the primary local profession is fishing, but this is declining because use of wire nets (*Gujja*),

dredging for fishmeal and other malpractices have significantly reduced the amount of fish in the sea. Fisheries have suffered the most in the coastal waters of Gadani, affecting the subsistence and livelihood of its local communities.

Lasbela District's coastal waters have a lot of shrimp, which are in high demand and fetch a good price. However, there is considerable concern among local fishermen and mole agents about the gradual decline in the shrimp catch over the past several years due to overexploitation.<sup>37</sup>

Shrimp farming can further be developed at appropriate locations in the Sonmiani Bay and on the banks of estuaries, however, the lands under mangrove cover must not be used. Shrimp farming has been attempted by the private sector in the past, albeit haphazardly, in the coastal areas of Sindh, because of the high mortality of juvenile shrimp. In 1995, the Marine Fisheries Department implemented a project for fish and shrimp seed production for private farms but this was unsuccessful,<sup>38</sup> due

37 Government of Pakistan, WWF and IUCN. *Biodiversity Action Plan for Pakistan*. Islamabad: GoP, 2008. Page 20.

38 Government of Balochistan. Balochistan Coastal Development Authority. Agriculture, Food Cooperatives and Fisheries Department. *Prospects of Shrimp Aquaculture on Balochistan Coast*. GoB. Page 5.

mainly due to lack of appropriate expertise. In the recent past, Sri Lankan experts have been invited to share their expertise on potential shrimp farming, which has yielded positive results.

IUCN is funding a demonstration project on shrimp farming on the Lasbela coast that may pave the way for commercial shrimp farming. Lobster farming is another possibility and needs to be explored.

In order to support fisheries, the Balochistan Coastal Development Authority (BCDA) has launched a project “Construction of Jetty and Fish Harbour at Damb” costing Rs. 536 million through the Public Sector Development Program (PSDP) 2008-2009, with an initial allocation of Rs. 17 million.

### Key Issues

- Over-exploitation of fisheries and use of unsustainable fishing practices.
- Pollution from industrial effluents, municipal discharges and solid wastes disposed of from Hub, Gadani, Bela and other towns and settlements in Lasbela District and also from the oil and air emissions of boat engines.
- Deforestation and degradation of mangroves, which are the nursery grounds of shrimps and many fish species.
- Lack of jetties and other facilities at catch landing sites (*Bandar*).
- Damages from cyclones e.g. Phet Cyclone in 2010 and droughts (reduces fresh water and sedimentation input into the estuaries and mangroves).
- High costs of boats, machinery, equipment, nets and other fishing gear.
- Exploitation of fishermen by money lenders and middlemen due to lack of credit facilities, which forces the fishermen to take loans from money lenders at very high interest rates and obliges them to sell the catch to them at very low rates.
- Perishable nature of catch and urgency in selling, notwithstanding the low rates offered at times.
- Use of traditional fishing facilities and techniques by the poor fishermen, which enhance their catch effort and yield less catch.
- Acute shortage of drinking water in the villages of fishing communities.
- Poor hygienic conditions in the coastal villages and in handling the catch.

### Measures

1. The Balochistan Fisheries Ordinance will be reviewed for required amendments.
2. All bottom trawling in coastal waters will be banned and the ban on all fishing crafts including those registered in Balochistan will be enforced. Significant penalties will be imposed including confiscation of fishing craft and gear to control bottom trawling and prosecution of all offenders. Offenders will remain in judicial custody in case of grave offences until completion and submission of case (in a reasonable period) in the court.
3. All other practices that deplete fisheries, stop rehabilitation and sustainable use, and affect the livelihood of local fishermen in the long term will be stopped.
4. The mobility of fisheries staff in coastal waters will be improved by providing funds for repairing and maintaining existing patrol boats and providing additional ones to control bottom trawling in the provincial waters.
5. The Balochistan Fisheries Department will be strengthened for controlling bottom trawling, use of illegal nets by fishermen, and fishing in Balochistan waters by boats registered in Sindh, and with vessels registered for deep sea fishing by the Marine Fisheries Department.
6. Access to credit for procurement of fishing gear and engines will be improved.
7. The warning system will be improved and preparedness for cyclones, tsunamis, oil

spills and earthquakes for fishermen at sea will be enhanced.

8. New jetties will be constructed in consultation with mole agents and fishermen.
9. An enabling environment will be created for import of items required by subsistence fishermen.

## 6.6 Climate

The vision for climate is to reduce air emissions and manage comprehensive weather and climate data in usable form for Gadani, Bela and a hilly area. This will be done for different applications such as weather forecasts and long-term trends and projections for agriculture, water, drought, floods, windstorms, heat waves, relief and rehabilitation, post-disaster situations, etc., and the information will be posted on the Meteorological Department’s website.

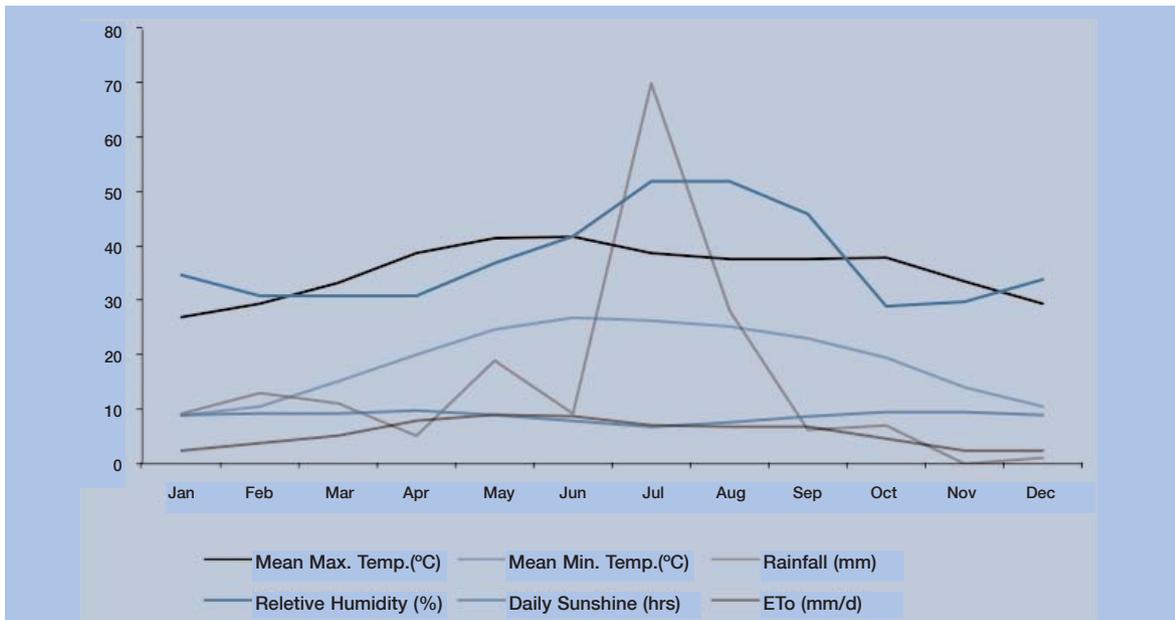
The area suffers from low rainfall and hot, dry summers. The coastal areas of the District have a more moderate and moist climate than that of the interior, which ranges from warm to hot. The temperature ranges from 3°C minimum to 17°C maximum in January and 24°C to 38°C in June. Bela Town often

records higher temperatures. The average monthly climate data from 1960-2004 is presented in Figures 3 and 4.

Rainfall is low and unreliable with periodic droughts for short and long periods, which negatively affects natural resources and livelihoods. Average total annual rainfall is less than 20 cm., most of which is during the monsoon season. However, very heavy downpour has taken place occasionally, such as in the summers of 2005 and 2009. Cyclonic showers were also experienced in 2010. During the rare periods of heavy rains, storm/flood water drains away, scouring and damaging protection embankments and diversion structures. In addition, District Lasbela, like other areas in Balochistan, has experienced long periods of drought as from 1998-2004. The district is vulnerable to a rise in the sea level due to global warming. The weathering process in the mud rocks is accelerated by these climatic elements.

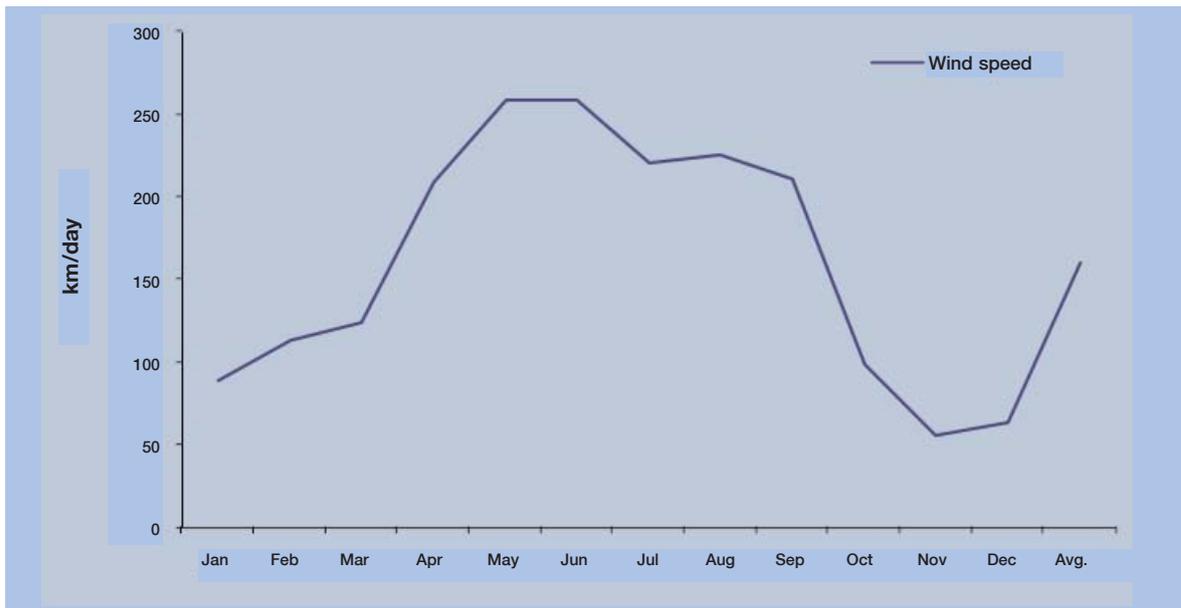
The climate of the district is dry and temperate in most parts and humid in the coastal areas. Except for the peak summer months, which are very hot, there is not much variation in climate in the remaining months of the year. The daylight hours are long and solar radiation is very high, indicating strong potential for generation of solar energy. The wind velocity in the coastal areas and in the

**Figure 439: Average Monthly Climate Data for District Lasbela - 1961-2004**



Source: IUCN Study: Water Requirements of Major Crops for Different Agro-climatic Zones of Balochistan (2006).

**Figure 5: Average Monthly Wind Speed Data for District Lasbela – 1961-2004**



Source: IUCN Study: Water Requirements of Major Crops for Different Agro-climatic Zones of Balochistan (2006).

valleys is also high, with potential for generating wind energy.

These climatic conditions are suitable for a wide range of agricultural crops and fruit orchards, especially tropical fruits such as banana, mango, dates, jujube (*bair*), jambu fruit (*jamun*), coconut, chico, custard apple (*sharifa*), lemon, and guava, provided irrigation water is available. There is also potential for poultry farming, warm water and coastal fisheries, and biodiversity including both flora and fauna.

The winter climate and the productive wetlands in the district host diverse large populations of migratory water birds.

### Key Issues

- There is only one weather station, in Bela Town, even though the weather conditions in the coastal and hilly areas of the district are often different.

- Management practices in natural resource sectors have not adapted to global warming and climate change, despite the threat these pose to the sustainability and productivity of natural resources.

### Measures

1. A comprehensive network of meteorological stations will be established based on the standards of the World Meteorological Organization that are geared to the province's requirements using Remote Sensing Technology.
2. Two additional stations will be established, one in Gadani and the other in a suitable hilly place away from Bela Town, to cover all areas of the district. These stations will be located at representative sites and will take advantage of seasonal satellite images.

# 7. Agriculture and Livestock

## 7.1 Floriculture<sup>40</sup>

**F**loriculture encompasses the growth and use of cut flowers, raising nurseries of ornamental plants, ornamental gardening and landscaping. It is a comparatively new agricultural activity in the province although research and promotion for this began in the 1980s. The private sector also has come forward in this business but this enterprise is still in its infancy in Balochistan.

The Agriculture Department is growing flowers for demonstration and sale at Quetta and setting up floral shops in towns with divisional headquarters. However, it is essential to develop and promote a floriculture strategy for potential districts including Lasbela. Promoting techniques for growing flowers in plastic tunnels is also required.

Lasbela District is located close to the supply catchment area of Karachi, which is the largest cut flower, ornamental plant and rose petal market in the country and is also an outlet for export of flowers to foreign markets.



40. Government of Balochistan. Agriculture Department. Directorate of Crop Reporting Services. [Agriculture Statistics of Balochistan 2008-09](#). Quetta: GoB, 2009.

The district also hosts a large number of Muslim shrines and *Hinglaj Maata* Hindu pilgrimage sites, which are visited by a large number of devotees who like to purchase and offer flowers there.

Floriculture has the potential to improve farmers' socio-economic conditions if they grow cut flowers, and raise nurseries of forest, fruit and ornamental plants on farmlands. However, the floriculture effort in the district is limited. For example, roses were grown on 3.24 ha<sup>41</sup> of land during 2009-2010, which produced 215,420 cut flowers.

### Key Issues

- Floriculture is not a traditional practice in the district, and farmers do not know the techniques of growing, harvesting and marketing, or its economics.
- Floriculture expertise in the department, especially its extension staff, is limited as is the scope, which is confined to cut flowers.
- Flowers are a perishable commodity and require swift and certain markets.
- Floriculture requires exacting inputs, investment, skills, intensive work, and turnover, which needs a progressive mind-set and a willingness to take risks.

### Measures

- A Floriculture Promotion Strategy will be developed and implemented for the province including Lasbela District.
- Exposure visits for interested farmers will be arranged from the district to ornamental nurseries and cut flower growing fields in Karachi, Pattoki and other places.
- Procurement, multiplication and marketing of flower seeds, bulbs, and ornamental plants such as herbs, shrubs and trees will be facilitated.

- Technical advice and service will be provided regularly to growers.
- Access to credit from financial development institutions will be facilitated.

## 7.2 Expansion of Agriculture

Lasbela is one of the most fertile and productive districts of Balochistan with the majority of the local population engaged in agriculture. The main staple grain is wheat while other crops include castor, sesame, guar seeds and fodder. Vegetables grown in Lasbela include onions and red chillies and fruits include bananas, chico, and papayas.

**Soil:** The soil in Lasbela District is alluvial and is composed of light loose clay, mixed with fine sand. In some parts of the district, the soil contains saline ingredients and preserves a hard smooth surface, in others, it crumbles to fine dust. The ground in many parts is covered with large round stones. The best soil is a light loam mixed with a moderate amount of sand, known as the cultivator's *milk*. Next in fertility and most common in the district is *aawari*, clay overlaid sand.

**Crops<sup>42</sup>:** The Rabi crops include wheat, vegetables, fodder and rapeseed, and mustard. The Kharif crops are sorghum (jawar), millet (bajra), sesame, castor seed, maize, vegetables, melons and cotton. In cereals, wheat is the main crop producing 15018 tonnes from 7591 ha (1978 Kg/ha), followed by 1405 tonnes of sorghum (jawar) grown on 2011 ha and 564 tonnes of maize from 567 ha. Moong is cultivated on 1310 ha, producing 880 tonnes (672 Kg/ha) while oil seeds include castor seed grown on 6030 ha, producing 2412 tonnes (400 Kg/ha) and sesame (*til*) on 317 ha with production of 138 tonnes (435 Kg/ha). In 2005-06, rice was produced in the district but it has been replaced by other crops since then. Cotton is being promoted through research and extension.

Tomato crop is cultivated on 95 ha with production of 1,415 tonnes (14,895 Kg/ha) during Rabi season while 4,854 tonnes of

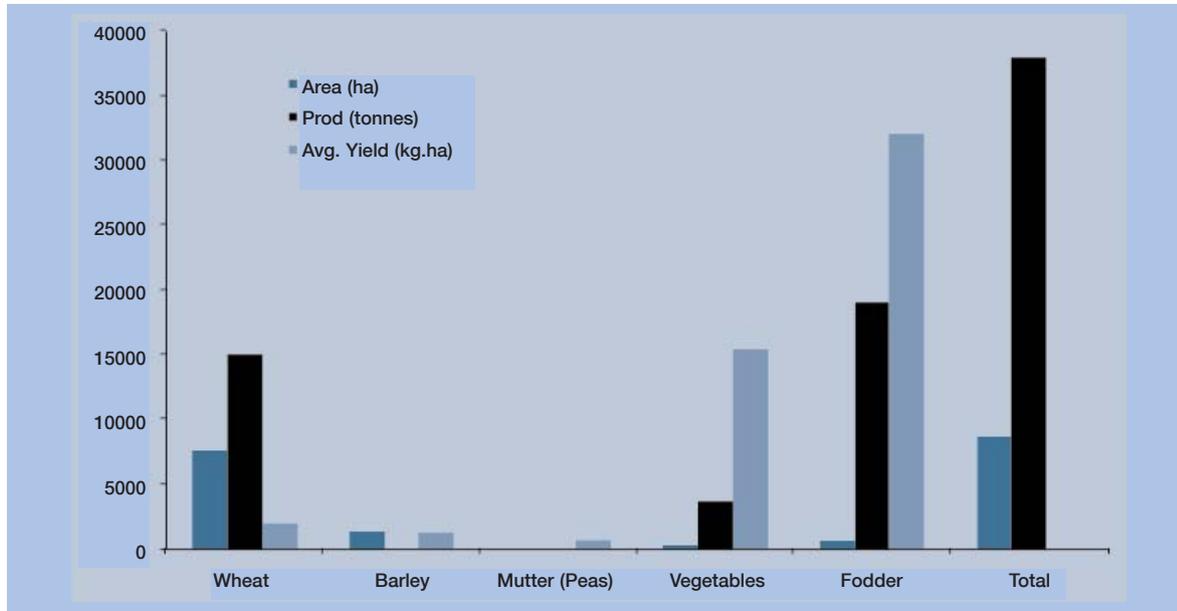
41 Government of Balochistan. Agriculture Department. Directorate of Crop Reporting Services. *Agriculture Statistics of Balochistan 2008-09*. Quetta: GoB, 2009.

42 *ibid*.

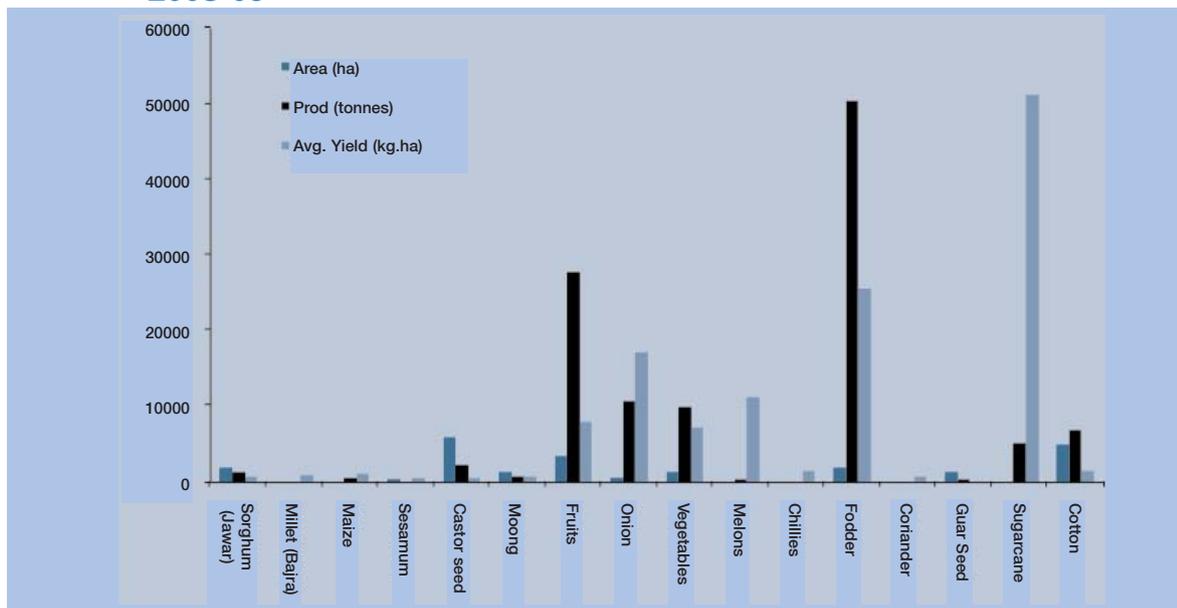
tomato was produced on 640 ha (7,584 Kg/ha), total production and yield being 6,269 tonnes and 8,529 Kg/ha respectively. It is followed by 2,246 tonnes of ladyfinger produced on 400 ha (5,615 Kg/ha) and 1,072 tonnes of bitter gourd on 152 ha (7,053 Kg/ha). Other vegetables include radish, cauliflower, bottle gourd, spinach and cucumber.

Currently, vast cultivable areas are lying barren in the district due to non-existence of irrigation facilities. Agriculture depends largely on sailaba and khushkaba systems of cultivation and tube wells installed by the owners of large land holdings to irrigate orchards and vegetables. Generally, the land is cultivated by the local people. Sorghum, guar seed, castor seed, melons and wheat

**Figure 6: Area, Production and Yield of Major Rabi Crops in Lasbela District during 2008-09<sup>43</sup>**



**Figure 7: Area, Production and Yield of Major Crops in Lasbela District during 2008-09<sup>44</sup>**



43 Government of Balochistan. Agriculture Department. Directorate of Crop Reporting Services. Agriculture Statistics of Balochistan 2008-09. Quetta: GoB, 2009.

44 *ibid.*

are cropped on the khushkaba or sailaba system. Generally, spate irrigated areas support low value agriculture. The crops yields are low. Even if optimal rainfall is received, the income from crops is lower than from competing alternate livelihoods, where available.

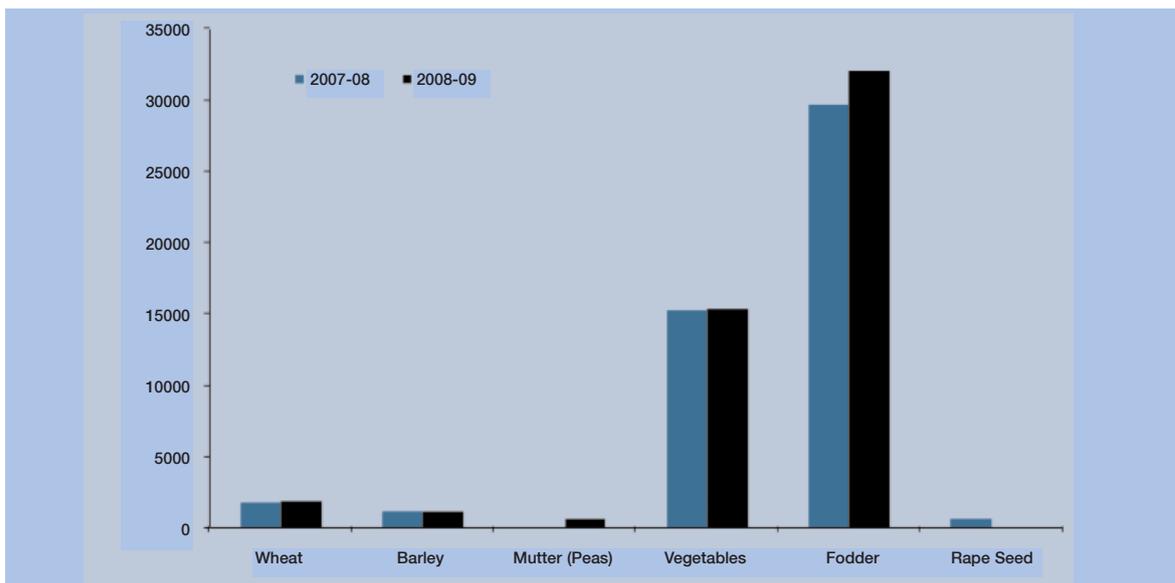
The area, production and yield of major Rabi and Kharif crops in the district during 2008-09 are given in Figures 5 and 6 respectively.

A comparison of the average yield of Rabi crops for the years 2007-08 and 2008-09 for Lasbela District is given in Figure 7.

A comparison of average yield of Kharif crops for the years 2007-08 and 2008-09 for Lasbela District is given in Figure 8.

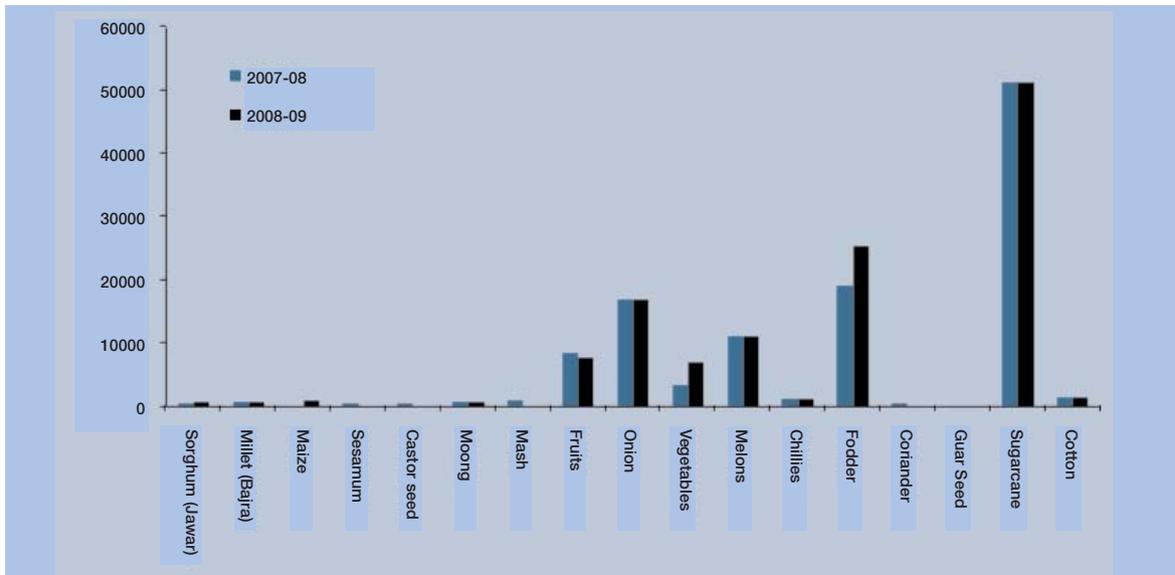
Two agriculture research and demonstration farms in Lasbela District are maintained by the Department of Agriculture; a Coconut Farm over an area of 81 ha at Uthal and the

**Figure 8: Comparison of Average Yield of Rabi Crops for the Year 2007-08 and 2008-09 for Lasbela District**



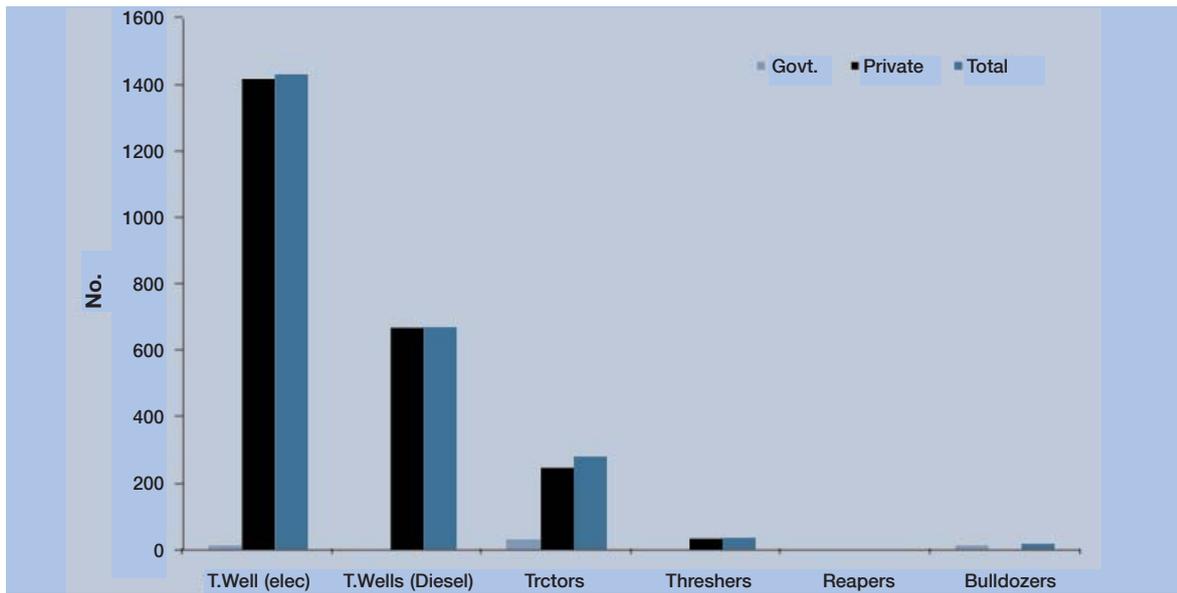
Source: Agriculture Statistics of Balochistan 2007-08 and 2008-09

**Figure 9: Comparison of Average Yield of Kharif Crops for the Year 2007-08 and 2008-09 for Lasbela District**



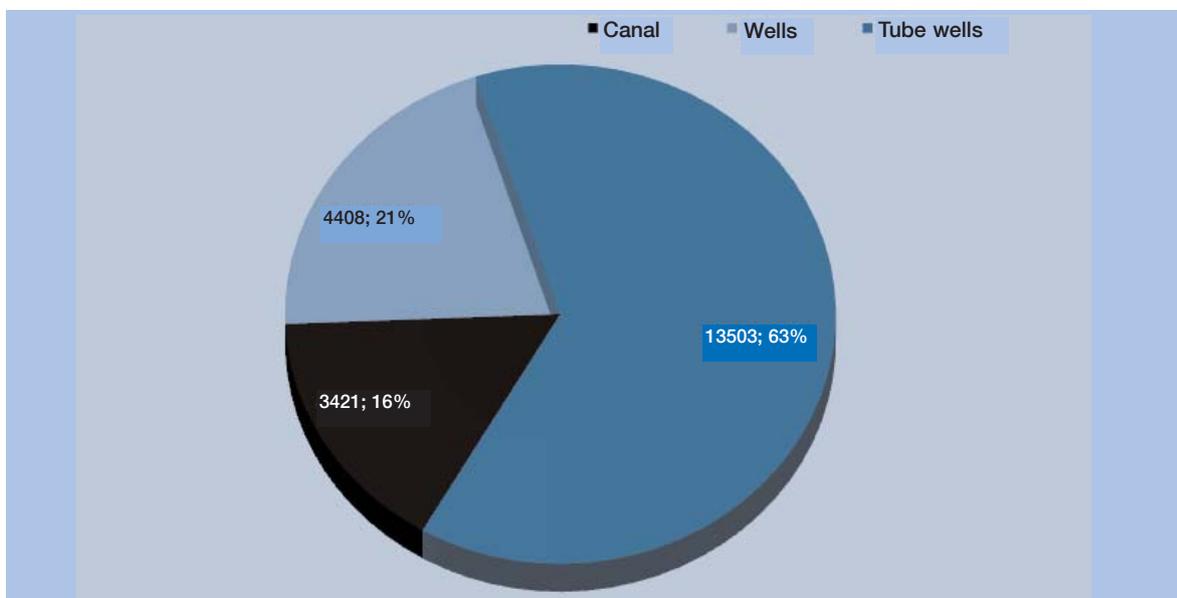
Source: Agriculture Statistics of Balochistan 2007-08 and 2008-09

**Figure 10: Agriculture Machinery in District Lasbela (2008-09)**



Source: Agriculture Statistics of Balochistan 2007-08 and 2008-09

**Figure 11: Source of Irrigation and Area (ha) Irrigated in Lasbela District**



Source: Agriculture Statistics of Balochistan 2007-08 and 2008-09

Agriculture Research Fruit Experiment Station Wayaro Farm of 67 ha. Fruit nursery plants produced at these farms are supplied to farmers at subsidized rates.

**Orchards<sup>45</sup>:** Banana is the major produce but its water requirements are very high. Being a coastal district, the coconut produce is over 9,567 tonnes; followed by 5,382 tonnes of banana, 5,082 tonnes of papaya, 1,924 tonnes

of mangoes and 1,749 tonnes of guava. A demonstration agriculture farm for fruits has been established at Uthal. The other fruits produced in the district include banana, mango, jujube (*bair*), jambu fruit (jamun), coconut, dates, chico, custard apple (*sharifa*) and lemon.

The agricultural machinery in the district is shown in Figure 9.

45 Government of Balochistan. Agriculture Department. Directorate of Crop Reporting Services. Agriculture Statistics of Balochistan 2008-09. Quetta: GoB, 2009.

The major sources of irrigation in the district are tube wells, wells and canals. The area irrigated by each of these sources is shown in Figure 10.

Lasbela has the highest potential for wheat production in the province after the eastern Indus system's canal irrigated districts, provided the surface water resources are developed. The district has also high potential for growing fruit orchards (for example banana), early and late summer vegetables and other high value cash crops, which are usually preferred by farmers. Therefore, it is important to choose crops that suit the farmers (economic return) as well as the province (food security) through price incentives or subsidies. In either case, development of surface water resources is an essential requirement.

**Corporate Farming:** Corporate farming, with the involvement of and financing by the private sector, can promote the development of commercial agriculture in the district. This will result in the introduction of technology and will provide the advantage of scale and marketing, thus revolutionizing traditional agriculture in the district. It can merge well with the surface water development initiatives of Hingol Dam and Windar Dam.

There is a need to develop a feasible model of public-private-community partnership based on equitable benefit sharing that can be replicated and scaled up within the district and province, as well as elsewhere in the country. The partnership model should focus on joint planning, implementation and monitoring, and provinces and communities can contribute state or communal land. The federal and provincial governments and a consortium of private investors can share the cost of mega water development and other long-term infrastructure projects. In addition, the private sector can invest in appropriate and efficient technology and management, the latter in partnership with communities. The cost of water development can be recovered through water charges paid by users at different tariffs. Manual labour can be provided by the community and the consortium of private investors can ensure skills development of suitable community members. Flexibility in this partnership will be essential. Once the model has been developed, lessons learned should be documented so that it can be replicated and scaled up.

**Other Facilities:** A large area of the land is cultivable waste, which can be transformed into arable land with appropriate inputs, especially irrigation water. Introduction of



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Cotton fields in Winder, Lasbela

modern technologies with regard to the use of water, timely supplies of quality seeds, and other agricultural inputs such as machinery, equipment, fertilizers, pesticides and credit, would contribute to increasing yields. An improved marketing system (that reduces the involvement of middlemen) will also benefit the farmers.

**BPM Cotton Growing:** Pesticide use on cotton is highest amongst crops in the cotton growing areas in Punjab and Sindh, which is undesirable in terms of environmental damage and cost of production. The best practices method (BPM) that will evolve for cotton growing in Bahawalpur by WWF-P will help the cotton growers in the district. It is, therefore, critical that the current cotton promotion project of the Pakistan Cotton Research Institute (PCRI) incorporates the BPM concept in its research and promotional work.

**Pesticide use:** Local adapted varieties of cotton are grown in the flood-irrigated areas. The timing of the flood determines the choice of the crop and there is little room to manoeuvre, resulting in monoculture and vulnerability to attack by plant pests and diseases. The use of pesticides is almost negligible due to farmers' lack of awareness of Integrated Pest Management (IPM), limited technical knowledge about various aspects of plant protection, and the high costs of pesticides, spraying and dusting equipment. Cotton, among crops, requires the use of maximum pesticides, which is being promoted in the district by a project of the Pakistan Cotton Research Institute (PCRI).

**Agricultural Marketing:** Accurate and timely marketing information is vital in helping farmers make profitable marketing decisions, such as what to produce, where to market the produce, and what price to expect. The GoB's Directorate of Agriculture, Economics and Marketing Balochistan, Quetta, is planning to develop a database system of this information at the provincial level.

In Balochistan, the Directorate of Agriculture Services for Crop Reporting has set up an on-line information system. The Directorate is now analysing supply and demand of the various agricultural produce in order to distinguish those crops that continuously face marketing problems (i.e., more or less production than demand, especially of

perishable commodities such as tomatoes, other vegetables, onions and fruits). However, forecasting future demand to guide farmers in their production planning is a more difficult task and will need sophisticated working, time and effort.

Providing price information about bigger markets and through radio and newspaper has limited use as the farmers are interested mainly in local market prices, which is where they sell their goods. Market information services, therefore, need decentralization at the regional or district level. The AGMARKET in Balochistan has decentralized the marketing information system to improve access to information in districts.

A modern vegetable and fruit market is being established at Uthal. While it is strategically located for servicing the coastal up-country areas, it faces strong competition from the Karachi market and will have to be managed well for sustainability.

Water issues, policies and strategies relating to agriculture are given in Table 11.

## Key Issues

- The district lacks a canal irrigation system despite having the potential for one.
- Traditionally weak agricultural practices including layout, levelling and tilth due to uncertain and erratic rainfall conditions, as a regular cropping calendar is difficult to follow. This affects seed germination, crop stand, health and productivity.
- The Agriculture Department arranges improved seeds of major crops at Uthal Town and recommends the seed rate. However, farmers generally use local seed of low quality at low seed rate, with poor germination.
- Lack of irrigation and credit facilities constrains the planting of fruit plants and development of orchards.
- The soil is deficient in organic matter; the use of chemical fertilizers for crops is low and limited to vegetables and orchards; and the use of farmyard manure is low.

**Table 11: Water Issues, Policies and Strategies Related to Agriculture for Surface Water**

Issues	Policy	Strategy
<b>a) Enhancing Availability of Water</b>		
Depleting reservoirs	Capacities of existing reservoirs (such as Hub Dam), mitigation of sedimentation, etc. will be improved.	<ul style="list-style-type: none"> <li>● A study will be undertaken on enhancing capacity of existing reservoirs</li> <li>● A Watershed Management Programme will be launched, dams will be checked, soil conservation measures will be implemented and sluicing devices in new dams will be incorporated.</li> </ul>
Inadequate storage	<ul style="list-style-type: none"> <li>● There will be construction of new multipurpose storage facilities, e.g., Hingol Dam, Windar Dam, and a dam on Porali River</li> <li>● Rainwater harvesting and other conservation measures will be undertaken.</li> </ul>	<ul style="list-style-type: none"> <li>● There will be education, dissemination of knowledge and creation of awareness about the need for additional water reservoirs</li> <li>● Major storages and small dams will be constructed wherever feasible.</li> </ul>
Seasonal variations	<ul style="list-style-type: none"> <li>● There will be judicious regulation of water storage.</li> <li>● For sustainability of groundwater, groundwater recharge will be promoted wherever technically and economically feasible (pumping will not exceed recharge).</li> </ul>	<ul style="list-style-type: none"> <li>● Studies and measures will be undertaken to conserve water and offset seasonal effects.</li> <li>● The Watershed Management Programme will be launched.</li> </ul>
<b>b) Improving Irrigation Practices</b>		
Traditional methods of irrigation, e.g., flood irrigation	<ul style="list-style-type: none"> <li>● Better irrigation practices at farm level will be promoted such as furrow and border irrigation, land levelling and use of technology-based high efficiency irrigation systems</li> <li>● Flexibility will be introduced in the system and re-regulation capability will be improved.</li> </ul>	<ul style="list-style-type: none"> <li>● Pilot projects will be prepared; timely implementation and adequate funding will be ensured.</li> <li>● Research and development in improved irrigation practices will be undertaken.</li> </ul>
Lack of demand-based irrigation, e.g., fixed “wara bandi” rather than need-based withdrawal in distribution system.	<ul style="list-style-type: none"> <li>● Water allowances on various canal commands will be rationalized.</li> </ul>	<ul style="list-style-type: none"> <li>● Awareness raising and education of farmers will be undertaken.</li> <li>● Studies will be conducted to rationalize water allowances.</li> </ul>

Issues	Policy	Strategy
		<ul style="list-style-type: none"> <li>Pilot demonstration projects will be developed for replication by farmers.</li> </ul>
Low crop yields and cropping intensity	<ul style="list-style-type: none"> <li>High delta crops will be discouraged and better operational practices, e.g., seed certification, farm mechanization, adequate use of IPM, fertilizers, etc., will be promoted, coupled with judicious use of water.</li> </ul>	<ul style="list-style-type: none"> <li>Availability of quality inputs at affordable prices will be ensured, with easy accessibility to farmers.</li> </ul>
Lack of modern irrigation techniques and low irrigation efficiency	<ul style="list-style-type: none"> <li>Use of high technical and modern irrigation techniques, e.g., sprinklers, drip irrigation system, etc. will be promoted.</li> <li>Laser levelling of agricultural lands will be encouraged.</li> </ul>	<ul style="list-style-type: none"> <li>High tech irrigation systems will be indigenized at affordable prices with easy access to farmers.</li> <li>Low cost laser levelling equipment will be manufactured/marketed.</li> </ul>
<b>c) Enhancing Irrigation Infrastructure and Sustainability</b>		
Low efficiencies in conveyance of water (conveyance losses).	<p>Higher efficiency in conveyance and use of irrigation water, e.g., lining, rehabilitation, silt clearance, re-sectioning, etc. will be promoted and supported.</p> <p>Sustainability of infrastructure will be ensured through adequate funding for O&amp;M.</p>	<p>Preference will be given for concrete over brick lining.</p> <p>Lining and rehabilitation of water conveyance infrastructure will be promoted, giving priority to saline zones, high filling and sandy reaches</p> <p>Periodic rehabilitation and remodelling of canal systems will be implemented.</p> <p>Commitment will be given by the provincial government to ensure adequate budget allocation as per yardsticks for O&amp;M, and periodic revision of yardsticks.</p>
Inadequate maintenance and deterioration of canal infrastructure.	<ul style="list-style-type: none"> <li>There will be better vigilance and monitoring of irrigation infrastructure.</li> <li>Performance-based O&amp;M contracts will be introduced on a pilot basis.</li> <li>Beneficiaries' participation in maintenance will be promoted.</li> </ul>	<ul style="list-style-type: none"> <li>Annual and periodic safety inspections of dams and canals will be carried out.</li> <li>Mechanized maintenance will be introduced wherever feasible.</li> <li>The province will commit to allocate adequate funds.</li> <li>Formation of Farmers' Organizations for O&amp;M of tertiary irrigation systems will be encouraged.</li> </ul>

Issues	Policy	Strategy
	<ul style="list-style-type: none"> <li>The existing canal system will be remodelled and new infrastructure will be constructed to increase cropping intensities in existing commands. New areas will be brought under irrigation.</li> </ul>	<ul style="list-style-type: none"> <li>Subject to availability of water, new canals will be constructed and periodic remodelling will be carried out wherever required.</li> <li>Appropriate financing will be ensured to undertake required projects.</li> <li>Satellite imageries/aerial photography will be used to support field assessment.</li> <li>Availability of credit incentives will be supported, such as allocation of land in new areas.</li> </ul>
Lack of private investment in infrastructure.	<ul style="list-style-type: none"> <li>Pilot private sector project on development of water infrastructure based on the pattern of highways, telecommunications, etc. will be developed and implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Reasonable return on equity will be facilitated by recovering charges from land users.</li> </ul>
Insufficient cost recovery	<ul style="list-style-type: none"> <li>The assessment and collection system for <i>abiana</i> (water rates/charges) will be improved.</li> <li><i>Abiana</i> rates will be rationalized in phases to ensure full O&amp;M recovery.</li> </ul>	<ul style="list-style-type: none"> <li>Existing assessment and collection system will be reviewed through improved management, modern technology and incentives.</li> <li>There will be phased enhancement of <i>abiana</i> rates and elimination of subsidies.</li> </ul>
<b>Improving Groundwater irrigation</b>		
Excessive Pumping (Lop-sided pumping).	<ul style="list-style-type: none"> <li>Excessive pumping will be avoided.</li> <li>A Groundwater Regulatory Framework will be developed for the district to control and optimize groundwater exploitation in conjunction with surface water.</li> <li>Pumping of water will be rationalized.</li> </ul>	Groundwater regulatory framework will be strictly enforced to avoid over exploitation.
	Provinces will develop a Groundwater Management Act.	<ul style="list-style-type: none"> <li>Areas with falling water table will be delineated for restricting uncontrolled abstraction.</li> </ul>

Issues	Policy	Strategy
		<ul style="list-style-type: none"> <li>● Monitoring efforts to determine sustainable groundwater potential will be strengthened.</li> <li>● Groundwater budgets for sub-basins and Canal Commands will be prepared for improved aquifer management.</li> <li>● All sources of recharge/discharge and their interaction with the groundwater reservoir will be evaluated.</li> </ul>
Poor quality groundwater in some areas, contamination/ up-coming (upward vertical movement of saline interface), and poor drainage.	<ul style="list-style-type: none"> <li>● Skimming wells will be promoted through education of farmers.</li> <li>● Bank credits will be provided.</li> </ul>	Various technologies being used for undisturbed extraction and skimming of fresh groundwater layers overlying saline water will be evaluated.
Land deterioration, i.e., secondary salinisation, sodicity, etc.	Fresh groundwater bodies will be protected from contamination by lateral and/or vertical movement of saline groundwater.	Optimal groundwater pumping in waterlogged areas to lower water tables in fresh groundwater areas, while restricting pumping in saline areas, giving due regard to safe and acceptable disposal of effluent will be promoted.
Depletion of ground-water in certain areas.	Mining of ground water will be prohibited.	The Provinces will prepare a groundwater Atlas for each Canal Command and sub basin and enact groundwater control regulations, which will be enforced at the district level.
<b>Harnessing Hill Torrents Irrigation</b>		
Under-utilization of potential of Hill Torrents.	The potential of hill torrents fully to supplement surface water irrigation will be exploited.	<ul style="list-style-type: none"> <li>● The Master Plan/Feasibility for Harnessing of Hill Torrents will be developed and updated.</li> <li>● Projects in Hill Torrent Areas will be developed to supplement water availability, improve and extend agriculture and alleviate poverty.</li> </ul>
Lack of investment to harness the flood flow of hill torrents.	Resources will be generated for harnessing the flood flow of hill torrents.	Funding will be arranged from indigenous and international resources to construct Hill Torrents management structures for flood control and maximum utilization of flows.

Source: Draft National Water Policy Water and Power 2006, Adapted by R-SDCS (2010)

- The lack of irrigation facilities, high costs of inputs such as improved seeds, tube well water, fertilizer and pesticides, poverty, and lack of adequate and appropriate credit facilities are major constraints in the development of agriculture, improved farming practices, and productivity.
- Lack of provincial responsibility including for research and extension, institutional strengthening and competency development, because of which the needs of the district are not met.
- Banana requires a very large amount of water and is dependent on tube wells.
- Rapid depletion of ground water.
- No system of monitoring tube well installation; the increase in the number of installed tube wells is very high.
- Agriculture is still being done using old practices.
- There are streams all over the district that drain water from the mountains, hills and uplands. The fast moving waters or flash floods cause soil erosion on agricultural land
- Disasters such as droughts and floods.

### Measures

1. A plan will be developed to increase the availability of surface water for agriculture, WatSan and other purposes.
2. Water will be conserved and wastage will be controlled through efficient use.
3. Installation of new tube wells in ground water stressed areas will be controlled.
4. Cropping patterns and fruit orchards will be reviewed for incorporating low delta crops and fruit plants.
5. A corporate farming model of public-private community partnership will be developed.
6. Middle-men in marketing will be eliminated.
7. Supply of agricultural inputs will improve.



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Wheat threshing at Uthal



Livestock grazing at Kandraj, Hingol National Park

8. Capacity building for farmers will be implemented.
9. Check dams will be conducted over small streams to help decrease the speed of flood water, trap soil, recharge ground water and stabilise with planting.
10. Organic farming and marketing of vegetables will be promoted.
11. The BPM concept in the research and promotional aspects of the current PCRI cotton project will be incorporated.
12. Human resource in commercial agriculture will be developed.
13. Success of the new agriculture market at Uthal Town will be ensured.
14. Small, medium and mega dams will be constructed over seasonal and perennial rivers and streams.
15. Technology-based efficient irrigation systems with subsidies, technical support and maintenance mechanisms will be introduced and promoted.

### 7.3 Livestock

The vision of the livestock sector in the district is to develop it as a pillar of growth through improvement of breeds, feeding and health facilities; dairy development; commercializing management of range dependent livestock for beef and meat; value addition of livestock products; and taking advantage of Karachi's proximity to supply livestock products and develop a livestock market near Hub Town for Karachi.

68 per cent of the households own livestock and the mean value of the owned livestock is Rs. 50,000/-.<sup>46</sup> A significant percentage of the workforce and households in the district are engaged in livestock rearing. Though the district has great potential for this, the sector has not received any attention so far. The importance of livestock as a major source of livelihood has decreased due to growing of orchards and vegetable cropping with irrigation. The district also suffers from periodic droughts. The recent long drought of 1998-2004 resulted in livestock mortality and loss to livestock-dependent households.

46 Government of Pakistan. Agriculture Census Organisation. *Livestock Census 2006*. Islamabad: ACO, Statistics Division, GoP, 2007.

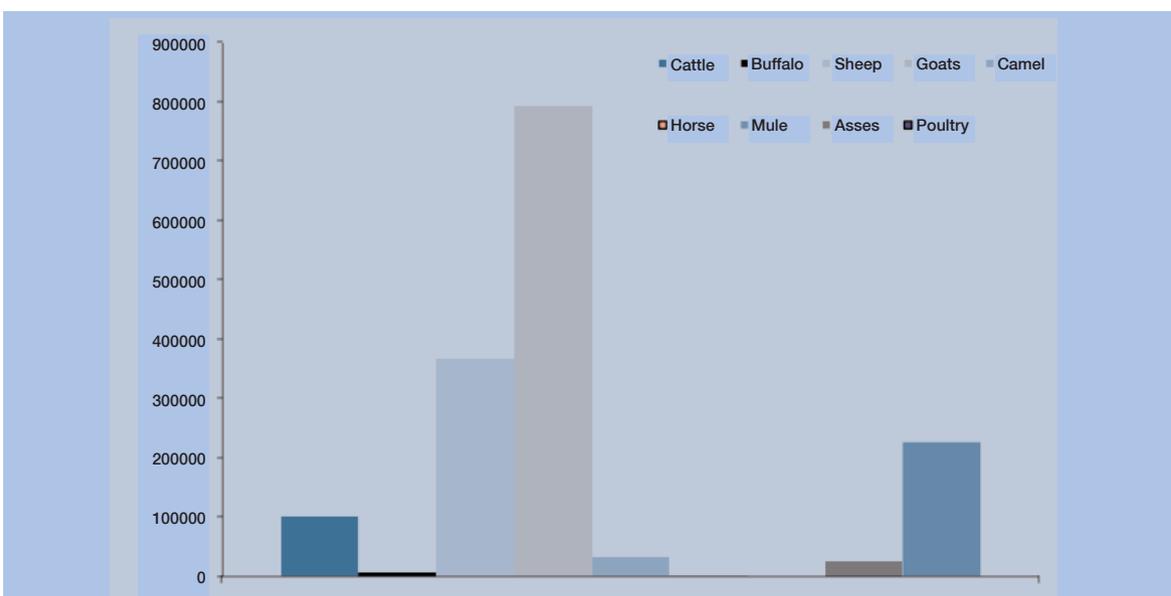
The subjects of livestock and rangelands are kept separate for administrative purposes, and come under the Livestock and Forest and Wildlife Departments respectively. Coordination between the two is almost non-existent. The livestock sector is informal and disorganized in the district as elsewhere in the province. The concept of commercialisation, which is being discussed at the provincial level, has not yet been translated on the ground. As a result, the full

potential of livestock resources has not yet been realized.

Lasbela District ranks 12th for percentage of households keeping livestock (68 per cent) among 26 districts (MICS-2004).

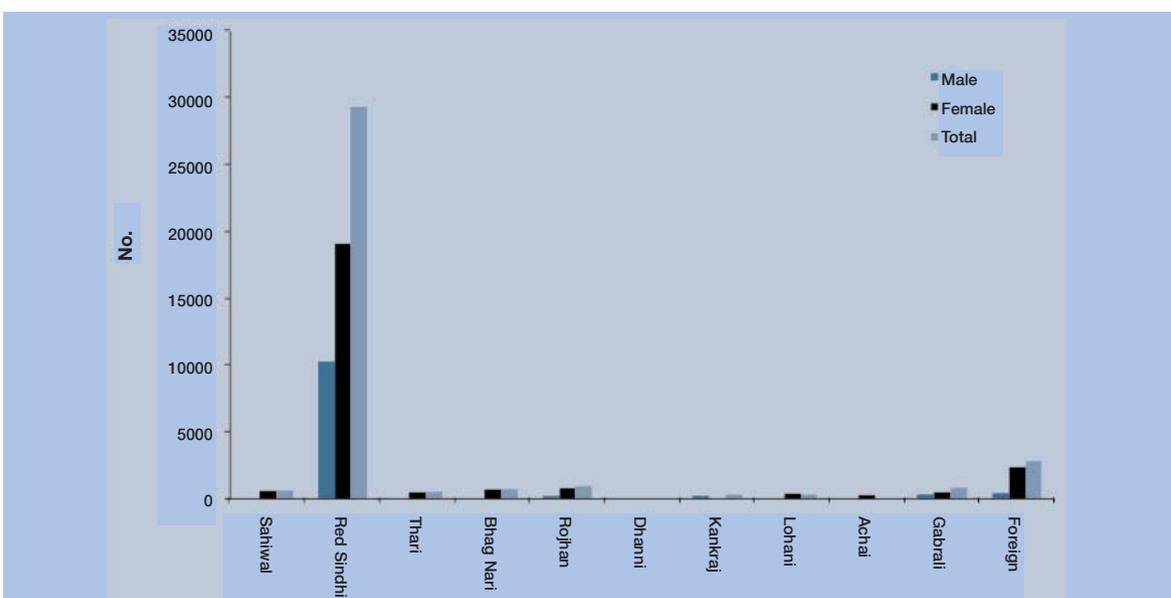
In 2006, the total number of livestock<sup>47</sup> in Lasbela District was 1,331,797 and poultry was 226,710. This includes 101,084 cattle, 7,980 buffalo, 367,262 sheep, 794,296 goats, 794,296 goats,

**Figure 12: Livestock Population in Lasbela District (2006)**



Source: Balochistan Livestock Census, 2006

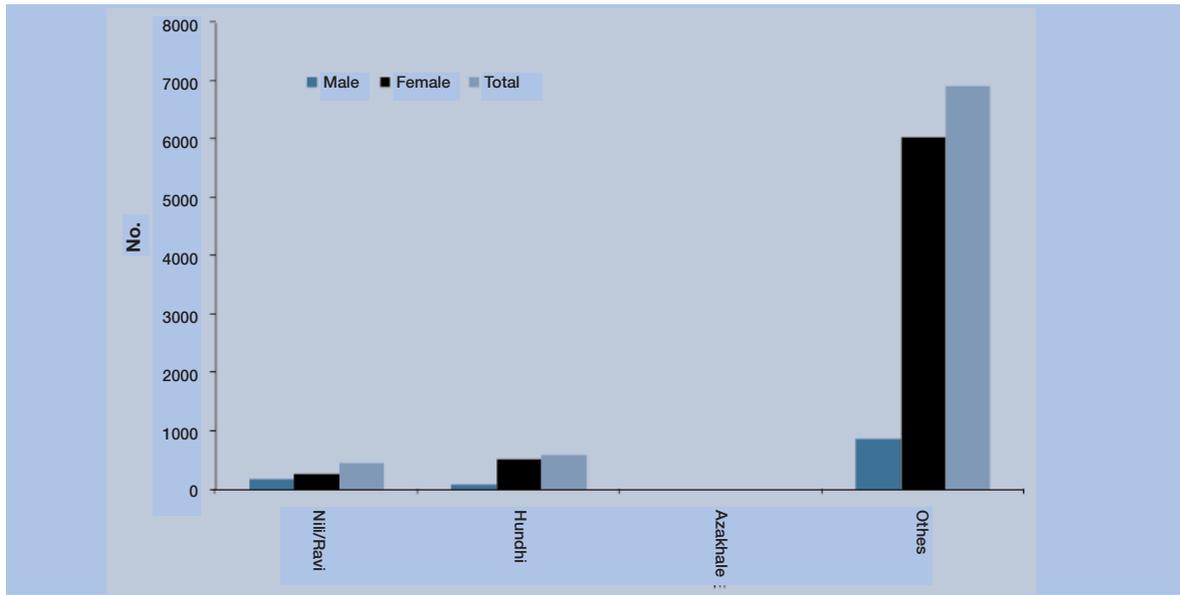
**Figure 13: The Number of Cattle by Sex and Breed in Lasbela District (2006)**



Source: Balochistan Livestock Census, 2006

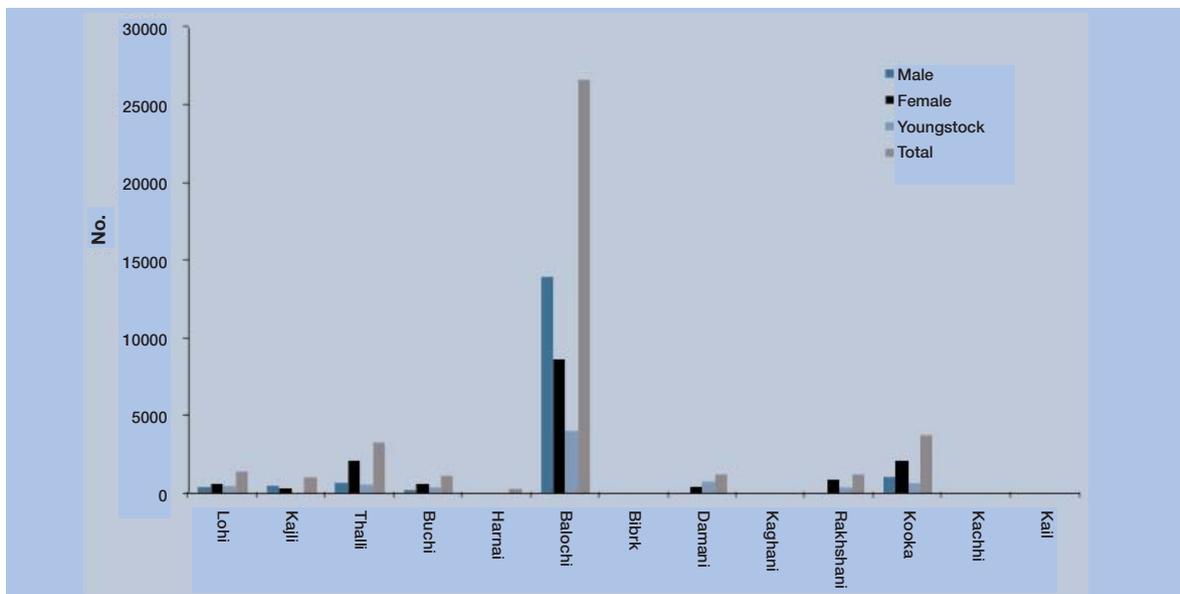
47 Government of Pakistan. Agriculture Census Organisation. Livestock Census 2006. Islamabad: ACO, Statistics Division, GoP, 2007.

**Figure 14: Number of Buffaloes by Breed in Lasbela District (2006)**



Source: Balochistan Livestock Census, 2006

**Figure 15: Number of Sheep by Breed in Lasbela District (2006)**



Source: Balochistan Livestock Census, 2006

32,202 camels, 1,857 horses, 581 mules, 26,535 donkeys and 226,710 poultry birds. Goats, sheep, cattle, camels, and donkeys predominated. Other livestock was 62,542 (25,494 male and 37,048 female). These are also shown in Figure 11.

There were 5 veterinary hospitals and 13 veterinary dispensaries in Lasbela District in 2006. 251,072 animals were treated, 338,417 vaccinated and 785 castrated in 2006. 16,911 animals (496 buffalo/cattle, 994 sheep, 15,282 goats and 139 camels) were slaughtered in

slaughterhouses. 19,210 animals (2028 buffalo/cattle, 994 sheep and 16,188 goats) were slaughtered in the open in 2006.

The number of cattle by sex and breed in the district is given in Figure 12.

The number of buffaloes by sex and breed in the district in 2006 is given in Figure 13.

Majority of the sheep are local breeds comprising of 43431 males, 162483 females, and 120991 young stocks below 1 year with

3,269,051. The improved breeds and their numbers are shown in Figure 14.

The majority of the goats are local breeds comprising 73,011 male, 335,599 female, and 136,010 young stocks, making their total number 544,620. The improved breeds and their numbers are shown in Figure 15.

Artificially inseminated cows and buffaloes during 12 months in the district prior to the census 2006 were less than one per cent.

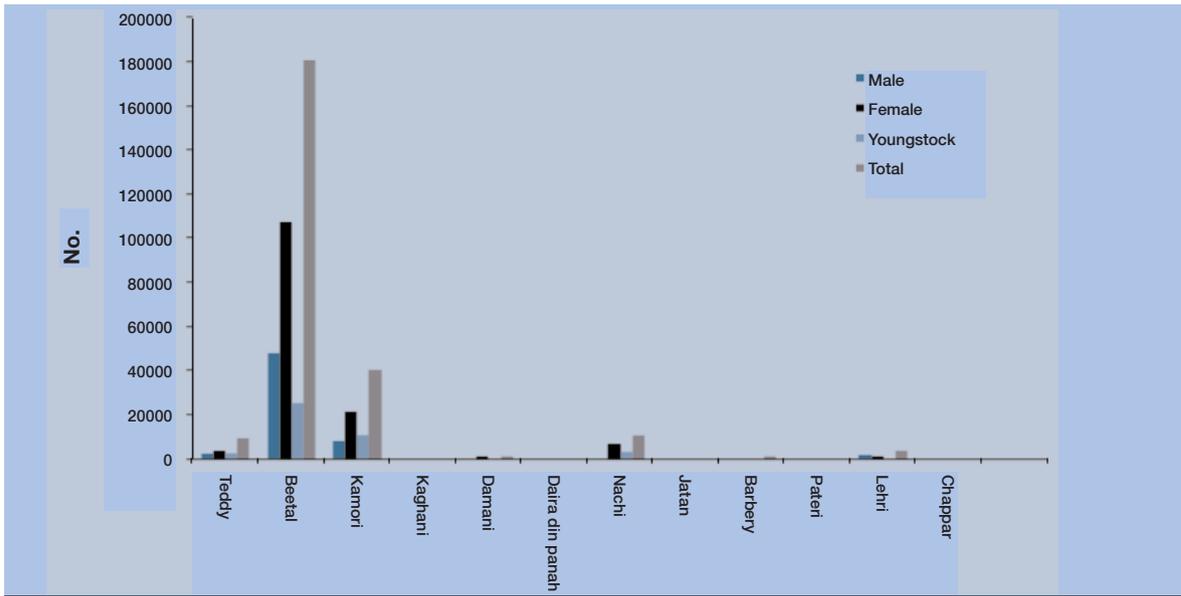
Annual veterinary coverage of livestock in the district in 2006 is shown in Figure 16.

Only one livestock project, Research Centre Dairy, costing Rs. 49.2 million, was included in the Public Sector Development Programme (PSDP) 2008-09 and 2009-10.

**Key Issues**

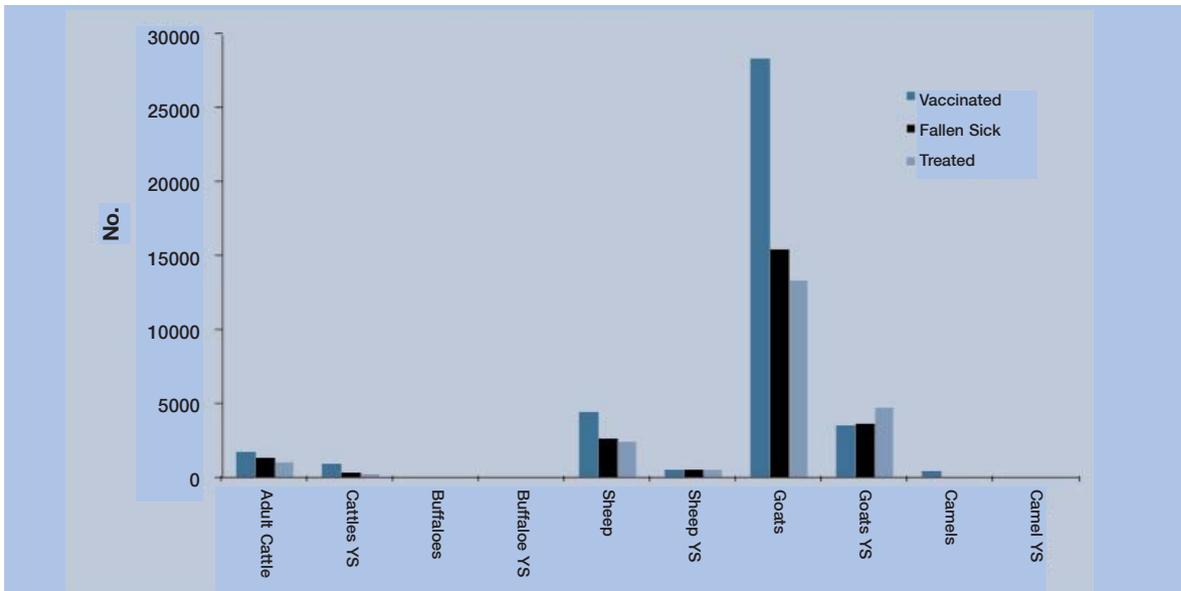
- The three main elements for livestock, breed, feeding and health are weak,

**Figure 16: Goat Improved Breeds and their Numbers in Lasbela District**



Source: Balochistan Livestock Census, 2006

**Figure 17: Annual Veterinary Coverage of Livestock in Lasbela District (2006)**



Source: Balochistan Livestock Census, 2006

as a result of which productivity of the animals is low.

products, e.g., wool, hides, skins, horns and hooves.

### **Breeds**

- Large numbers of less productive animals.
- Inadequate facilities for artificial insemination (few insemination centres that are distantly located).
- Poor results of artificial insemination (AI) in the past and social reservations about AI.
- Not culling less productive animals since they are considered to be status symbols and handy cash.
- Lack of conscious gene pool conservation.
- Lack of sires of better breeds for improved breeding.

- Lack of commercial production of meat for marketing within the country and outside.
- Lack of biogas production from livestock dung and urine and using the slurry as manure.

### **Measures**

### **Feeding**

- Low fodder production due to low cultivation and small cultivated holdings.
- No introduction of high yielding fodder varieties.
- Forage yield in rangelands less than its potential due to overgrazing, degradation and no grazing management (rotational and deferred rotational grazing, early spring and late grazing at the time of seed ripening), and lack of investment in reseedling, seeding, development of water points, placement of salt licks and grazing management.

1. Breed, feeding (including range management), health disease/parasite control, commercial meat and beef production, and marketing improvement programmes in the district will be launched.
2. Awareness raising and capacity building programmes for relevant staff of public sector agencies and livestock farmers will be implemented.
3. Institutional strengthening of relevant agencies and organizations will be ensured.
4. Preventive health cover including vaccination against infectious and communicable diseases, control ticks, and curative treatment including de-worming will be provided.
5. Use of water from Hub Dam for WatSan and industry, livestock and fodder will be prioritized.
6. The use of diclofenac will be discouraged, which has been found fatal for vultures feeding on dead animals' carcasses containing its residue.
7. Livestock management will be commercialized on a sound scientific basis with involvement of local communities.
8. Integrated planning and management of livestock, rangelands, forests, agriculture and water will be implemented.
9. Reliable data collection and its interpretation at the village level for planning and management will be implemented.

### **Health**

- Inadequate preventive (vaccination) and curative health facilities for livestock.

### **Damage to Forests**

- Camel browsing and lopping of mangroves for fodder.
- Trampling and foraging by livestock.

### **Value addition**

- Lack of value addition of livestock

10. Public-private-community partnership in livestock and range improvement, management and marketing programmes will be implemented.
11. Breeds will be improved while ensuring conservation of the indigenous gene pool of livestock in the district, from amongst the best animals.
12. Dairy farming will take place in the canal command areas of Hub Dam and under-construction Windar Dam, Hingol Dam, and other future dams.
13. A regular livestock market near Hub Chauki will be established and operated that is large enough to be developed as one of the livestock markets for Karachi, especially for Eid ul Azha.
14. Rangelands will be improved, improved/high yielding fodder crops with more varieties, grown over a larger area, will be cultivated, and use of animal feed (urea molasses blocks, urea treated straw or feed from mills) to provide adequate quantities of quality feed for animals will increase.
15. Close coordination between the livestock, forest and wildlife, agriculture and irrigation departments will be ensured for improvement of livestock and rangelands; and joint livestock and rangeland projects, interventions and activities, for implementation by joint teams.
16. The number of low productive animals will be reduced.

## 7.4 Rangelands

The vision of rangelands in the district is to enhance their productivity to their optimum potential with investments in range improvement and grazing management. Local communities should be aware of the links between livestock productivity and health of the rangelands; their capacity for rangeland improvement and grazing management should be built; and planning and management of livestock, rangelands and agriculture should be integrated.

Though a significant proportion of the district population is engaged in livestock rearing, this



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Rangeland at Kanraj, Edu village area

sector, particularly rangelands, has not received any attention so far.

The importance of rangelands has decreased due to growing of orchards and vegetable cropping with irrigation. Periodic droughts have also affected rangelands – the recent long drought of 1998-2004 resulted in degradation of rangelands.

There are vast rangelands in the district. The major land use in Lasbela District is livestock grazing on rangelands, on which most of the livestock in the district depends. They are also the principal watersheds for the water-starved lands. Other products of the rangelands include medicinal plants, fuel wood and wildlife. Large areas of rangelands were converted to land use for agriculture, housing and settlements, industry, and the communication sectors. Conversion of more areas is planned for mega developments in the water and other sectors mentioned above.

The rangelands have degraded due to overgrazing and lack of inputs and management. Any focus of the Forest Department on rangelands in the province has remained limited to the central and northern parts of the province, with little consideration for Lasbela District. The six-year long drought from 1998-2004 aggravated the situation since there was livestock mortality and weight loss. The productivity of rangelands has declined, their water-recharge capacity has reduced and the ecological character as a wildlife habitat has deteriorated.

### Key Issues

- Low forage yield due to low precipitation and degradation.
- Periodic droughts.
- Disappearance of traditional community institutions for natural resource management, resulting in unmanaged grazing of livestock.
- The general perception of rangelands as wastelands and lack of awareness of communities, political leaders and decision-makers regarding their loss and degradation and its consequences.

- Overgrazing and grubbing of bushes for fuel.
- Lack of coordination among range resource related agencies, especially the Forest and Wildlife Department and the Livestock Department.
- Lack of investment for maintaining productivity.

### Measures

1. There will be mobilization, organization (including revival of local institutions), motivation, participation and capacity building of communities in planning, improvement and management of rangelands.
2. Advocacy will be conducted to prioritize rangelands for investment and create awareness of their sustainable use, i.e., avoid overgrazing.
3. Water recharge/storage/harvesting will be promoted and best practices for fodder cultivation and improvement of rangelands will be disseminated.
4. Close coordination between the Livestock, Forest and Wildlife and Agriculture departments, and communities and other stakeholders will be encouraged for improvement of livestock and sustainable management of rangelands.
5. There will be investment in rehabilitation (increase productivity) of rangelands, provision of economic incentives to communities and promotion of sustainable management through integrated planning and management. This will also help enhance recharge of water and conserve biodiversity, especially the palatable plant species and dependent species of all forms of wild animals.
6. Replicable models of livestock and range management will be established and the same will be documented and disseminated for scale up and replication.
7. The pressure of camel browsing and forage collection on mangroves in Sonmiani Bay will be reduced and management of mangroves for non-exploitative uses, as a nursery of coastal

fisheries, especially for shrimp, and for tourism will be prioritized. There are vast alternative areas for camel browsing in the district.

8. Joint livestock and rangeland projects, interventions and activities by relevant public sector agencies will be implemented, that can also be implemented by joint teams of veterinary and animal husbandry specialists, foresters, agriculturists and sociologists.
9. Free grazing of livestock will be discouraged and gradually reduced, and replaced with rotational and deferred rotational grazing in accordance with the carrying capacity of the rangelands and forests. A moratorium will be imposed on grazing/browsing in regeneration areas and plantations until rotational and deferred rotational grazing is fully established.

## 8. Coastal Resources

**T**he vision of coastal resources is of their integrated planning and management for rehabilitation and sustainable use, primarily for the welfare and social development of the coastal communities; controlling over-exploitation and pollution of coastal resources; enhancing alternate sustainable livelihoods of communities including from non-exploitative uses of resources such as ecotourism; accommodating environment friendly industrial development along the coastline; and proactive planning to minimise losses from disasters.



The key coastal resources of Lasbela District include mangroves, fisheries, wildlife and protected areas, bay, estuaries, beaches and mud flats. The existing developments and further potential include ship breaking, harbour, jetties, power plants, oil refineries and ecotourism. Integrated planning and management are appropriate tools for sustainable development of coastal zone and marine areas.

## Integrated Coastal Zone Management Plan (ICZMP)

ICZMP of the entire coastal zone of Balochistan needs development, using modern planning and resource management methods, as well as interdisciplinary expertise. Agenda 21 has recommended that each coastal state should develop a policy and planning framework and establish a high level planning body involving local populations for integrated coastal management<sup>48</sup>.

The ICZM Plan of Balochistan will include the coastal districts of Lasbela and Gwadar. The planning will involve the setting of national, provincial and district policies and goals; inventories of resources; identification of stakes, stakeholders, conflicts, issues, challenges and statistics; identification, selection and implementation of management systems, such as guidelines, permits and economic incentives; socioeconomic and environmental assessment; conflict resolution techniques; land use planning and enforced zoning; and protection of sensitive areas. This intervention will help in breaking the sectoral barriers, minimising negative environmental and social impacts and maximizing the benefits from the resources and developments. The BCS recommended guidelines for preparing ICZMP are given in Box 6.

### Key Issues

- Lack of awareness and comprehension of issues and the way forward.
- Weak capacities of and poor coordination between communities, CBOs, government organisations and other stakeholders.
- Lack of integrated planning and management of coastal areas.
- Concentration of industrial growth on the coastline of Lasbela District, especially near Gadani beach.
- Untreated industrial effluents of HITE, WITE and municipal discharges released in the coastal waters directly and through rivers e.g. Hub River and Porali River.
- Solid waste (municipal, industrial and hospital) also added into coastal waters.
- Degradation and depletion of mangroves and fisheries respectively in coastal areas due to over exploitation e.g. camel browsing and lopping of mangroves and fire wood removal, and harmful fishing practices e.g. use of *Gujja* and wire net.
- Reduction in the flow of fresh water and sediment in the estuaries due to construction of dams e.g., Hub Dam and the future dams such as Hingol Dam and Windar Dam with adverse impacts on their ecological characters and sustainability, e.g., effects on mangroves, breeding and nursery areas of marine fauna, erosion of coastline.
- Land erosion at Damb coast and the resultant damage to property.
- Disasters such as cyclone, tsunami, oil spill, flood and earthquakes.
- Untapped ecotourism potential – sandy beaches, mangroves, wildlife watching (migratory and resident water birds, marine turtles, dolphins and porpoise), angling and fishing, sea sports, natural areas and cultural sites etc.
- Acute problem of drinking water, lack of WatSan facilities, acute poverty, poor facilities of education and health, excessive use of *Gutka* and betel leaves and nuts.

### Measures

1. Awareness raising and capacity building of local communities, CBOs, public sector agencies and other stakeholders will be undertaken and coordination between all relevant organisations and stakeholders will be improved.
2. The Integrated Coastal Zone Management Plan of Balochistan Coast including the coastal areas of Lasbela District will be developed.

**Box 6: Guidelines for preparing ICZM Plan**

Establish a high-level steering committee to:

- Develop the goals, objectives and principles of the plan;
- Define planning boundaries and scope of the plan;
- Oversee development and implementation of a participatory planning process;
- Ensure inter-agency coordination; and
- Guide the preparation of the plan, its approval and implementation.
- Establish and mobilize a small, multidisciplinary core group to prepare the plan.
- Establish a broadly based interest group composed of all stakeholders.
- Collect secondary data and information, and analyse.
- Identify information gaps and commission-required studies.
- Define issues and trends.
- Establish priorities.
- Identify alternative ways of managing human activities causing adverse impacts.
- Evaluate alternative management strategies.
- Finalize and obtain approval of the plan.
- Implement the plan and establish a monitoring and evaluation mechanism

3. Only environment-friendly developments along the coastline will be allowed. carrying capacity of coastal waters. Efforts will be made to restrict the boats to the coastal areas of the district.
4. It will be ensured that local communities are not marginalised further due to developments along the coast, rather they are the major beneficiaries.
5. Rehabilitation, conservation and sustainable use of mangroves by reducing the level of exploitation, planting mangroves over additional areas, and ensuring environmental flow from the dams will be ensured.
6. Rehabilitation of coastal fisheries, especially shrimp fisheries by strengthening legislation and enforcing it to control all harmful fishing practices will be ensured.
7. Fishing by the fishing boats of Sindh and trawlers and vessels registered for deep-sea fishing will be controlled.
8. The size of the fishing fleet of Balochistan coastal areas will be kept within the
9. Alternate sustainable livelihoods will be promoted including ecotourism, captive fisheries, e.g., shrimps, lobsters, fishing-net making, mangrove planting, boat repair, etc.
10. Direct and indirect (into rivers draining into estuaries) untreated effluents and discharges of all kinds of solid waste will be controlled.
11. Social indicators will be improved by enhancing coverage and improving delivery of social services, especially WatSan, health, and education.
12. The parts of the Balochistan Disaster Risk Management Plan relevant to the coastal areas will be implemented, in particular preparedness to minimise losses from cyclones, tsunamis, oil spills, floods and earthquakes.

## 8.1 Fisheries

### Inland Fisheries

Coastal fishery is widely practiced in Balochistan Province. Fresh water fishery has been managed only in the Hub Reservoir (Balochistan Province is a co- beneficiary with Sindh Province) by WAPDA with the introduction of exotic fish for commercial netting.

This clashed with the principle of preserving native fish fauna, which included the Mahsheer fish popular with the anglers from Karachi.

The commercial fishery of exotic fishes is also in conflict with the objectives of managing this wetland of international importance (formerly designated as a Ramsar site by the government of Pakistan) as the wintering of migratory water birds and the fishing period coincided. As a result the water birds, especially ducks and coots were caught in nets by fishermen besides disturbing them. The potential sites for development and management of fisheries resources in the district include the proposed Hub Dam, Windar Dam and Porali River, Malir *Nadi*, Hingol River and Siranda Lake (seasonal but very important for water birds) etc.

The potential of freshwater fisheries in Lasbela District has not yet been studied and ought to be the first step in developing inland fisheries. In the meanwhile, further conflicts i.e. commercial fishing with nets during the wintering period of migratory water birds and introduction of exotic species should be avoided in planning and managing inland fisheries in the district. Fish hatcheries development and stocking the potential waters with local fish species also needed to be examined.

### Coastal & Marine Fisheries

The estuaries of all of the rivers mentioned above, Sonmiani Bay or Miani Hoar and the coastal waters up to 12 nautical miles provide fisheries related subsistence and livelihood for the people of coastal areas in the district.

District Lasbela's location on the coast enables it to exploit coastal and marine fisheries.

Only Gwadar District shares this advantage, the location of the fish landing sites either being close to Karachi (e.g. Sonmiani) or being connected with it (Sumar *Bandar*, Phor *Bandar*, Sapat *Bandar*, Wadh *Bandar*, Kund Malir, Malan *Bandar*) by Makran Coastal Highway the fish catch reaches Karachi for further disposal. The mole agents and middlemen collect the catch themselves from the landing sites and transport it to Karachi.

Gadani is a coastal town of Lasbela District. The profession of locals is fishing. However, the fishery is on the downfall as wire nets, *Gujja*, dredging for fishmeal and other malpractices have degraded the sea life. The fisheries have suffered the most in the coastal waters of Gadani, affecting the subsistence and livelihood of local communities there.

The coastal waters of Lasbela District are endowed with shrimps. The shrimp catch is in high demand and fetches good price. However, there is considerable concern among the local fishermen and mole agents about gradual decline in the shrimp catch in coastal waters since past several years due to overexploitation<sup>49</sup>. In 2002, the total shrimp catch on the Balochistan coast was 639 tonnes and its value was Rs. 218 Million, Lasbela's share of the catch is not known.

Shrimp farming is unknown on the Lasbela coast although it could be developed at appropriate locations in the Sonmiani Bay and on the banks of estuaries. However, it must not use the lands under mangrove cover. Shrimp farming was tried in the coastal areas of Sindh haphazardly by the private sector in the distant past but was unsuccessful because of the high mortality of juvenile shrimps. In 1995, the Marine Fisheries Department implemented a project of fish and shrimp seed production for supply to private farms but the project was not successful<sup>50</sup>. The lack of success is mainly due to lack of appropriate expertise in the country. The involvement of Sri Lankan experts in the recent past in exploring the potential of

49 Government of Pakistan, WWF & IUCN, Biodiversity Action Plan for Pakistan, page 20.

50 Government of Balochistan, Prospects of Shrimp Aquaculture on Balochistan Coast, Balochistan Coastal Development Authority, page 5



© IUCN, Balochistan Programme

Fishermen arriving with fresh catch at the shore

shrimp farming on Sindh coast has resulted in positive results. It appears that there is great potential of shrimp farming on Balochistan coast but it is yet unexploited.

IUCN is funding a demonstration project on shrimp farming on the Lasbela coast that may pave the way for commercial shrimp farming in the area. Lobster farming is another possibility and needs exploring at medium to large scale.

Balochistan Coastal Development Authority (BCDA) launched a project “Construction of Jetty and Fish Harbour at Damb” costing Rs. 536.1 Million through Public Sector Development Program (PSDP) 2008-2009 with an allocation of Rs. 17.1 Million.

### Key Issues

- Over exploitation of fisheries and use of unsustainable fishing practices
- Pollution from industrial effluents, municipal discharges and solid wastes disposed of from Hub, Gadani, Bela and other towns and settlements in Lasbela District and also from the oil and air emissions of boat engines.
- Deforestation and degradation of mangroves, which are the nursery grounds of shrimps and many fish species;
- Lack of jetties and other facilities at catch landing sites (*Bandar*)
- Damages from cyclones e.g. Phet Cyclone in 2010 and droughts (reduces fresh water and sedimentation input into the estuaries and mangroves)
- High costs of boats, machinery, equipment , nets and other fishing gear
- Exploitation of fishermen by money lenders and middlemen due to lack of credit facilities, which forces the fishermen to take loans from money lenders at very high interest rates and

obliges them to sell the catch to them at very low rates

- Perishable nature of catch and urgency in selling, notwithstanding the low rates offered at times
- Use of traditional fishing facilities and techniques by the poor fishermen, which enhance their catch effort and yield less catch
- Acute shortage of drinking water in the villages of fishing communities
- Poor hygienic conditions in the coastal villages and in handling the catch
- The vision of the sector is to restore, develop and sustainably use fisheries, in particular coastal fisheries, as one of the pillars of economic growth of the district and province as expected in the Balochistan Economic Report<sup>51</sup>; and enhance the livelihoods of and delivery of social services to fishing communities.

## Measures

1. The Balochistan Fisheries Department will be strengthened for controlling bottom trawling, use of illegal nets by fishermen, and fishing in coastal waters of Balochistan by the boats registered in Sindh and the vessels registered for deep sea fishing by the Marine Fisheries Department.
2. The Balochistan Fisheries Ordinance will be reviewed.
3. Bottom trawling in coastal waters by any method will be banned.
4. All fishing crafts including those registered in Balochistan will be treated equally for enforcing controls on bottom trawling.
5. Penalties will be enhanced to a significant level including confiscation of fishing craft and gear to control bottom trawling.
6. Offenders will remain in judicial custody in case of grave offences until completion and submission of case (in a reasonable period) in the court.
7. All offenders will be prosecuted.
8. All other practices that deplete fisheries, stop rehabilitation and sustainable use, and affect the livelihood of local fishermen in the long term will be addressed.
9. Mobility of fisheries staff in coastal waters will be improved by providing funds for repairing and maintaining the existing patrol boats and providing additional patrol boats to control the menace of bottom trawling in the provincial waters.
10. New jetties will be constructed in consultation with mole agents and fishermen.
11. An enabling environment will be created for import of items required by the subsistence fishermen.
12. Access to credit for procurement of fishing gears and engines will be improved.
13. The warning system of cyclone, tsunami, oil spill, and earthquake for fishermen while at sea will be improved.
14. Preparedness against cyclone, tsunami, oil spill, earthquake and flood will be enhanced.

# 9. Economic Development

Industry, transport, commerce and trade in the urban centres and agriculture, livestock and fisheries in the rural areas are the pillars of economic growth in Lasbela District. The sustainability of the economy of Lasbela District can be evaluated from its ability to:

- Provide a desirable quality of life to its people
- Attract and retain the required labour force in the district, especially for industry, mining, ship-breaking, orchards, vegetable growing, poultry farming, etc.
- Maintain a positive business environment
- Ensure continued investment in productive sectors and urban infrastructure that support economic productivity.

Despite ups and down in the industrial sector, the economy of the district has been sustained by the private sector, as shown by Hub and Gadani, which have generated significant economic opportunities.



## 9.1 Commerce and Trade

Commerce and trade is one of the pillars of growth in the district. The important centres in this regard include Hub, Uthal, Bela, Windar and Gadani. Commercial activity will increase further in Uthal Town once the agriculture market is established. Uthal has the potential of developing into a wholesale market for coastal areas and the northern parts of the province.

## 9.2 Industry

### Lasbela Industrial Estates

Lasbela, particularly Hub, has the advantage of close proximity to Karachi with its enormous market and export facilities; this has been a decisive factor in the development of Lasbela's industrial sector. Two projects in the Industries and Commerce sector, "Marble City at Gadani" for Rs. 50 million and "Supply of Gas to Windar Industrial Area" for Rs. 138 million were included in the Public Sector Development Program 2008-2009.

There are about 360 industrial units, of which 135 are functional and 125 are sick or closed. The key large and functional ones are listed in Table 12.

The World Bank (2008)<sup>52</sup> reported on the issues and gains of Lasbela's Industrial Estates. Tax holidays offered by Lasbela's industrial estates in the late 1980s and early 1990s attracted significant investments in the fields of textiles, engineering, pharmaceuticals, food and confectionery,

chemicals, marble processing, electronics, oil blending and lubrication, and packaging. Most of the companies and workforce came from Karachi, located only 11 km from the Hub Industrial and Trading Estate. Since the end of the eight-year tax holiday in 1996, almost half of the 178 manufacturing enterprises have closed down.

However, the goal of real development in Balochistan Province was defeated by many investors, whose prime objective was to avail the tax holiday and concessions for scaling up or setting up their units at Karachi but not to make any commitments in real terms. Apart from the phasing out of fiscal incentives, other reasons for the closure of industrial units included the high cost of raw materials and the poor management of the industrial estates. As a result, many units became sick and Federal and provincial government attempts to revive these through incentive-based policies were only partially successful.

The establishment of LIEDA has introduced improvements in management and triggered a revival of fortunes. LIEDA provides one-window services. For example, it purchases bulk electricity from the Karachi Electric Supply Corporation (KESC) and ensures the reliable supply of electricity through its own distribution network. It is also involved in vocational training in collaboration with local enterprises and the local community to help address skilled labour shortages. Beyond improved management and services, the inflation in the cost of land in Karachi has induced companies to benefit from favourable land leases by LIEDA, which provides 99-year land-leases at nominal rent.

**Table 12: Large and Functional Industries in Lasbela Industrial Estates (2009)**

S. No.	Industry	Nature	S. No.	Industry	Nature
1.	HUBCO Power Plant	IPP	7	Dawood Yamaha	Motor Cycle Assembling
2.	Gatron Industries Ltd.	Polyester	8	Attock Cement Pakistan Ltd	Cement
3.	Pakistan Synthetic Ltd.	Polyester.	9	Falcon Cement	Cement
4.	Cadbury Pakistan Ltd.	Confectionary	10	P&G Pakistan Ltd	Consumer goods
5.	Allied Electronics	LG Production	11	Otsuka Pakistan Ltd.	Pharmaceutical
6	Candyland	Confectionary			

Source: Lasbela Industrial Estates Development Authority (LEIDA)



Ship breaking in progress at Gadani

Environmental pollution, especially brown pollution, is considerable in the district, due to the operation of 135 industrial units (Hub, Windar, Uthal, Gadani Ship Breaking, Marble City and other sources discussed in the respective sections). Untreated effluents from the HITE (Hub Industrial and Trading Estate) industries are discharged into Hub River; there are also issues of emissions and unsafe disposal of industrial solid waste.

A Turkish consultancy firm, engaged on the initiative of the Pakistan Environmental Protection Agency (Pak EPA), had carried out the feasibility of a combined treatment plant for the effluents of industries in HITE and found out that the small volume of discharge of divergent nature was prohibitive to the economic feasibility of such a treatment plant<sup>53</sup>. It was reported in the Annual Report of Activities of the Lasbela Chamber of Commerce and Industry, 2006-07, that the installation of a Combined Effluent Treatment Plant in Hub was envisaged jointly by the Federal, Provincial and District Governments and industrialist stakeholders to treat industrial effluents before discharging into the Hub River in compliance with the requirements of the Pakistan Environmental Protection Act, 1997. The Turkish consultants

and suppliers of the Plant had conducted a survey and proposed to LIEDA to conduct a topographical survey of HITE and other industrial areas to ensure proper installation of sewerage system so that all the waste water can go to the main sewerage outlet. LIEDA has completed the survey and is working on setting up a proper sewerage system.

### Ship Breaking at Gadani Beach

Gadani ship breaking, as the name implies, is situated on the Gadani coast of Lasbela District. It was started by and is also currently managed by, the Balochistan Development Authority (BDA). There are 314 plots of 4 acres each, out of which 132 have been utilized so far; 101 plots are privately owned. 31 plots are state owned, out of which 21 were allotted and 10 are un-allotted. Fishing activity in the coastal waters of Gadani has finished due to the ship-breaking industry.

There is a public water tank of PHE, which supplies water to Gadani Town and ship breaking facilities.

Ship-breaking is a 'dirty' industry and has been eliminated by developed countries. Although even competitive developing

53 Personal communication with the President, Lasbela Chamber of Industries, in a meeting in his industry office at Hub on 19 June 2009

countries such as India are reducing this industry, the sector has the potential to provide jobs and boosts the economy if its adverse environmental and social impacts can be corrected.

The breaking, storage, transportation, disposal of wastes and other operations creates impact but the most important part of the operation is the cleaning of the vessels before breaking. This is supposed to be performed outside Pakistan’s territorial waters, in another country, before the vessels are berthed at Gadani.

Inspection of cleaning of previously loaded cargo remains, oil washing, etc., is necessary but is not done.

### Marble City

Marble City was established near Hub in 2008-2009 to promote the value addition of the marble extracted from Lasbela (e.g., Dureji) and other districts in Balochistan. Many marble units are operational and are providing

jobs and income. The environmental concerns about marble processing units in Marble City relate to air pollution and discharge of liquid waste in the wet cutting process.

Concerns regarding workers’ safety and occupational health are relevant to all three types of industries discussed above.

The common water related issues, policies and strategies regarding industries are given in Table 13.

### Key Issues

- The ship breaking industry has seen many ups and down due to internal and external factors including tax and other policies of the federal government.
- Employment of skilled and organized labour from outside the District since local people do not have the required skills or aptitude for working long and active hours.

**Table 13: Common Water Related Issues, Policies and Strategies Regarding Industries**

Issues	Policy	Strategy
<b>Water for Industry</b>		
Inadequate water supply for industries	Adequate supplies of water for industry on will be ensured priority basis to promote industrial development and economic growth.	Water for industry needs in all future planning will be reviewed, enhanced and incorporated.
Unauthorized ground water extraction	Unauthorized groundwater extraction by industries will be curbed.	Existing legislation will be reviewed and amended regulation laws related to water pumping, licenses, etc. will be enacted.
Disposal of Industrial effluent without treatment (e.g., in Hub River)	<ul style="list-style-type: none"> <li>● Measures for treatment of industrial wastewater (under EPAs) to protect water bodies will be enforced.</li> <li>● Effective monitoring will take place.</li> </ul>	<ul style="list-style-type: none"> <li>● Industrial expansion on larger industrial estates will be promoted to simplify wastewater treatment and monitoring of effluent disposal.</li> <li>● Effective implementation of effluent disposal standards will be enforced.</li> <li>● Community participation to check water pollution will be promoted.</li> </ul>



Marble city near Hub

- Health and other facilities that should be provided through the social security system and the Employees Old Age Benefit Scheme are available only to the permanent workers, leaving out a significant number of daily wage workers.

## Measures

1. The Balochistan EPA, Regional Office, Hub, will conduct regular periodic monitoring to confirm that the municipal, industrial and hospital wastes, sewerage, and industrial effluents are within acceptable limits and safely disposed of, and that all concerned comply with NEQS.
2. Industries and LIEDA will be pursued for treatment of industrial effluents.
3. The staff of Labour Department and Mining Directorate will monitor workers' safety and occupational health conditions as well as efficient delivery of social security facilities and old age benefits to the workers of industries and mines respectively.
4. The advantage of Lasbela District over Karachi in terms of availability of land will be exploited on easier terms for growth and development of industry.
5. Industry as well as services/utilities-related policies will aim at keeping the industries competitive and attractive for existing and new investors.
6. The number of water filtration plants in industrial and other towns and large villages will be increased.

## 9.3 Micro, Small and Medium Enterprise

Enhanced technical skills and organisational capacity are essential for SMEs to be competitive. Earlier attempts in this direction in Pakistan and elsewhere were not very successful, partly due to limited conceptualisation of the role of technology in development, and lack of practical experience in project implementation and delivery mechanisms.

National Vision 2030 proposes to overcome the SME deficit in order to interact positively with large modern companies in Pakistan or abroad. To achieve this goal, there needs to be a focus on skills development through training as well as capacity building for better managerial practices and improved technical knowledge (see Box 7).

### Key Issues

- Lack of information regarding potential, technology and costs.
- Lack of or low technical and managerial skills and entrepreneurial capacity.
- Unsupportive policy, regulatory, taxation and bureaucratic environment is prohibitive in achieving establishment and growth of SMEs, enhancing employment, and reducing poverty.
- Lack of credit facilities or difficulties involved in accessing credit.

- Competing with well-established, advantageously located enterprises, availability of skilled labour, and access to credit, information, technology and market chains is difficult unless public sector incentives and patronage become available.
- There are plans to implement the National Vision 2030 regarding SMEs given in Box 7<sup>54</sup>. The focus in the district will however be on promoting SMEs, mainly for increasing the production of raw materials, mechanization of agriculture and mining, promoting poultry farming, handicrafts, ecotourism and value addition of agriculture and livestock products.

### Measures

1. A comprehensive study for setting up SMEs will be conducted.
2. Internal and external difficulties in establishing SMEs will be removed.

### Box 7: National Vision 2030 — SMEs

National Vision 2030 proposes to overcome the SME deficit through improvement of hardware and processes, increasing internal and external efficiencies through skills-based and other training, better managerial practices and improved technology. The purpose is to bring SMEs to a point where they can interact positively with large modern companies in Pakistan or abroad, including the SMEs in the Newly Industrialised Countries (NICs).

Technology and business skills are integrated into SMEs using *change management*, which has been institutionalised in a series of clusters and training programmes across the country.

Business networking and trust will be enhanced through better contract enforcement, as part of the effort towards creating an enabling environment. Instruments for micro-credit and information technology will help further in filling the gap in the SME sector, specifically, networking and match making for markets and technology. Since women outnumber men in farming and dairy activities, it will be essential to prepare female trainers to improve the capacity of rural women. An important initiative is the recently launched AHAN project (*Aik Hunar-Aik Nagar* or 'One' Product - 'One' Village), which is expected to play an important role in upgrading skills and marketing village enterprises. It will also help improve linkages with small farmers, who generally remain removed from large industry.

**Non-farm activities** and incomes will be further strengthened through encouragement of cooperatives, which can promote small-scale industry and help poor non-farm households improve their livelihood. The initiative for more efficient use of water for agriculture (land levelling, or drip/sprinkler irrigation) is one example of new activities, which require a higher set of skills for operation and maintenance, and are therefore eminently suitable for developing new rural micro-businesses.

54 In this regard, the steps required are identification of the types of SMEs, their technical and economic feasibilities, support required by such ventures, and developing and implementing feasible action plans. The way forward can be worked out in collaboration with SMEDA. The key ingredients needed to make SMEs competitive are enhanced technical skills and organisational capacity. Earlier attempts in this direction in Pakistan and elsewhere were not very successful, partly due to limited conceptualisation of technology and its role in development, and lack of practical experience in project implementation and delivery mechanisms.

3. Small SME estates will be planned proactively, with all facilities, to avoid unplanned growth and the subsequent environmental and other issues.
4. Comprehensive EIAs of all industrial and most SME projects will be ensured and mitigation measures will be implemented.
5. Improvement of SMEs' access to credit, ability to use information technology, networking and match making for markets and technology will be facilitated. Networking and trust of SMEs through better contract enforcement for positive interaction with large modern companies in Pakistan and abroad will be enhanced.
6. Formal and on-the-job training (in collaboration with established mega industries) on customised skills, better managerial practices and technological innovations will be provided.
7. Public sector investment on developing technical expertise and skills will increase and opportunities for modernisation of agriculture, livestock and mining sectors and development of SMEs in the district will be improved.
8. The initiative for more efficient use of water for agriculture (land levelling, or bubbler irrigation) is one example of new activities which will require a higher set of skills for operation and maintenance, and are therefore eminently suitable for seeding of new rural micro-businesses.

## 9.4 Minerals and Mining

The vision is to explore and exploit the full potential of mining in the district, modernize the mining sector and add value where possible, with full participation of the private sector (offering incentives and technical support) and local communities (share in royalties and employment opportunity for community members).

The district is endowed generously with mineral wealth. As in other areas of the province, lack of funds for exploration of minerals, and development of proper feasibility studies regarding exploitation is the

key constraint. The potential of this sector needs the attention of the provincial government and the private sector.

Marble, serpentine, barite, shale, and limestone are the major minerals in the district. Red ochre and some other mineral deposits have been discovered near Khannar towards Khuzdar. Small quantities of chromite and significant deposits of lead and zinc have also been found; lead and zinc are being exploited by a Chinese company.

Large deposits of marble exist in Dureji Tehsil. While good potential for mineral extraction exists in Bela Tehsil, it remains unexplored due to political pressure and lack of road facilities.

Minerals in the district are mined in traditional ways; very few mine owners use the improved practices. The marble is processed in Mable City and the other minerals are transported to Karachi for processing and sale or use. Generally, factory owners purchase the minerals directly from mine owners or lessees but chromite is sold through middle men who export it to China.

The overall production of minerals has increased during the last five years but the production of basalt, quartzite, red ochre and building stone has been stopped as the cost of production and transportation increased rapidly, making the mining of these minerals uneconomical.

Mineral wise prospecting license numbers and mining leasing numbers in Lasbela District (as of 30 June 2009) are given in Figure 17.

The mining localities and production of minerals in the district are given in Table 14.

According to Mushtaq, Faisal (2005),<sup>55</sup> the Pakistan-China Agreement on the development of lead and zinc in Balochistan (including Lasbela District) has opened avenues for economic exploitation and utilization of abundant mineral resources on modern lines. Base metal deposits, i.e., chromite, copper, iron ore, lead and zinc, and the non-metallic i.e., barite, marble, limestone, coal, dolomite, calcite, silica sand, building and engineering stones are found in Lasbela District. Mining in the private sector is carried

55 The DAWN Group of Newspapers (2005).The Pakistan-China agreement on the development of lead and zinc in DAWN 4 Apr. 2005 (archives.dawn.com/2005/04/04/abr5.htm - [Cached](#)).

out on a sporadic basis to supply small tonnages only, as and when the opportunity arises. Royalties are payable on any mineral that is mined and hence the lessees of the mines declare only a part of the production to avoid payment. This leads to discrepancies in statistics.

Minerals and rocks are used in local industries and for domestic purposes. Potential exists for large-scale export of certain mineral commodities such as marble, magnetite and dimension/building stones (granite, agglomerate etc.), provided export markets are developed. Enormous resources exist for local consumption in the form of cement raw material and aggregates for use in the construction industry. Industrial minerals, such as silica sand and magnetite, construction materials such as limestone, dolomite, sand and gravel deposits, are also found in the district.

A number of metallic and non-metallic minerals are being mined on a small scale. Mines are generally not mechanized, and manual labour is used for trenching, open-pit mining and quarrying until these operations become too dangerous for further excavation. Coal and chromite mining requires digging and inclines. This method of mining is labour-intensive and comparatively inexpensive for small mines, allowing them to stay in production. The mining industry could generate as many more jobs as presently

exist, but the majority of labour force engaged in coal mining comes from outside the province.

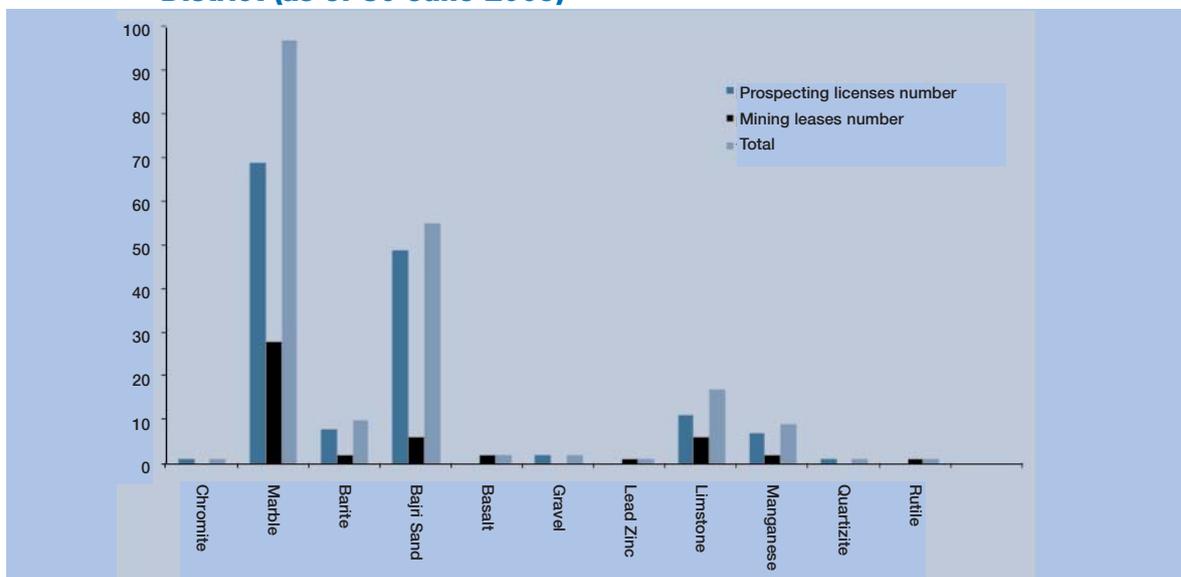
Little has changed in the mining sector since van Gils, H.A.M.J. et.al (1992)<sup>56</sup> prepared the Environmental Profile of Balochistan. At that time, concern was expressed about water and air pollution from coal mining. Remedies were proposed including the treatment and management of coal waste and sulphur dioxide emissions as well as the preparation of EIA (Environmental Impact Assessment) of potential mining developments.

The production of copper blister requires twice the volume of water for each ton of ore processed. Assuring a sustainable supply of water and mitigating the effects on other users (communities, agriculture and wildlife) are important. The development of major mines and the lack of attention to water management may preclude other mining operations in the basin, both in terms of water availability and economics.

### Key Issues

- Minerals and mining have remained provincial subjects as they were not devolved. The current environment is not enabling for exploitation of the great potential of mining in the province; there is much room for

**Figure 18: Prospecting Licenses Number and Mining Leases Number in Lasbela District (as of 30 June 2009)**



Source: Mineral Directorate General Balochistan

**Table 14: Mining Localities and Production of Minerals in Lasbela District (2009)**

S. No.	Mineral	Field/ Locality	Quantity	Additional Information/ Remarks
1.	Chromites	-	-	Small reserve – not being exploited currently
2.	Marble	Dureji, Sakraan, Lohi Nala, Lakha, Goth Muhammad Hashim, Barag	203,215 MT	Mainly processed in Hub & Karachi, recently in Marble City, Hub
3.	Barite	Kharari Nadi	2482 MT	
4.	Bajri Sand	Hub River	Unmeasured	
5.	Basalt	Gajri Nala	186 MT	
6.	Gravel	Hub River	Unmeasured	
7.	Lead/Zinc	Dudhar	Unmeasured	Production started recently
8.	Lime stone	Baawani Nala, Goth Addu, Chorli peae, Goth Siddique	1,016,783 MT	Used by Attock Cement
9.	Manganese	Gasheri Dhora Kharari Nadi	2748 MT	
10.	Iron ore	Goth Basho	-	
11.	Quartzite	Vakacho	-	
12.	Rutile	Rathi	-	
13.	Shale	Sameatg	1,495,508 MT	Used by Attock Cement
14.	Clay	Pabni Naka	15 MT	
15.	Copper Ore	Dhom Dhora	Unmeasured	
16.	Serpentine	Dodo Dhora, Pohara Dhora	1441 MT	

Source: Directorate General of Minerals & Mining, Quetta

improvement by the provincial and federal governments.

- Research and management data is shelved in manual files without analysis and is not used for policy and management decisions. Accounts are still prepared manually and are not computerised. Exploration licensing and mining licensing approvals are thus granted on an ad-hoc basis.
- Geologists and other professionals feel frustrated since decision making in the department is generally made by the mining engineers. This results in lack of monitoring of the leases, the relevant expertise in the provincial department not fully used, and the decisions regarding factors such as licensing, exploration and royalty rates, not based on sound scientific knowledge. This impacts the revenues of the provincial government.
- The auction system, although well conceived, is said to have failed to yield results due to faulty implementation. Value addition e.g., by upgradation of chromite, is not done. Extraction of marble blocks through traditional methods results in wastage and increase in transportation costs.
- The full mining potential of District Lasbela has not yet been explored. The main bottlenecks in exploitation and development of minerals are lack of infrastructure and the high cost of estimating reserves and preparing feasibility reports.
- Most minerals are exported in raw form with no value addition, thus limiting employment and income generation opportunities.
- Often, mine owners do not get a fair price due to distantly located markets.
- The production of minerals is grossly under-reported to pay fewer royalties.

- Monitoring mechanisms and their implementation are weak.

## Measures

1. A computer-based system for data and information management in the 107 Directorate General of Mines and Minerals, Quetta will be established.
2. Value addition will be promoted instead of marketing raw minerals.
3. Production will be monitored and full royalty will be realized.
4. Technology will be used for improving efficiency and quality of extracted materials.
5. The mining sector will be modernized, public-private sector cooperation will be promoted and obstacles faced by the mining sector will be resolved.
6. Institutional strengthening will take place, with a focus on modernizing the working of the Balochistan Directorate General of Minerals and Mining.
7. Cutting and transportation of marble sheets will take place at the mining sites, which is more economical and will provide jobs to the local people. Wastage in marble extraction will be minimized with the use of appropriate technology.
8. Data and information will be updated and managed electronically on each mineral and site regarding area, quantum of deposit, mining status with details, e.g., lessee, mining method, production, royalties received and due, if any, workers employed, conditions and measures taken regarding workers' safety, occupational health, social security, employees old age benefits; and other relevant information that is useful for potential entrepreneurs.
9. An Export Processing Zone will be established at Hub for minerals mined in Lasbela and adjoining districts, including marble, magnetite, lead and zinc (already being exploited by a Chinese company).
10. An enabling environment for investors will be created.

11. Worker's safety and occupational health conditions in mines will be improved.
12. Technical support and monitoring will be provided.
13. Provision of electricity, water, roads, other infrastructure, and credit will be facilitated.
14. Minerals and non-mineral deposits will be explored and exploited further.

## 9.5 Energy

The vision of energy in Lasbela District is complete coverage of all large settlements in the district, with uninterrupted supply of electricity and natural gas at reasonable tariff rates; harnessing the potential of solar, wind and biogas energy in the medium term and wave and tidal energy in the long term; harnessing the opportunities of exploration and exploitation of oil and gas, development of power plants and refineries in the district by the private sector in an environment-friendly manner, with benefits to local communities; supplying power to the national grid at reasonable tariffs; and making refined oil available at reasonable rates. From a long-term environmental and economic perspective, appropriate energy goals for the district are meeting the shortfall of power and fossil fuels, especially natural gas and CNG, and conservation of energy.

The role of energy in all aspects of life is crucial, for lighting, cooking, heating, household gadgets; WatSan, health, education and transport services, communication, automation in businesses, mining, agriculture, livestock and poultry farming, tourism, and all kinds of developments. The simplest divisions of energy are power or electricity, oil and gas, biomass energy, and alternative sustainable energy.

## Oil & Gas

Lasbela District has natural gas and oil deposits on land and off-shore. Lasmo and Premier Oil have been exploring oil and gas in Dureji Tehsil, and there are plans to set up an oil refinery in the Gadani area. It is important that these developments are environment-friendly, and are ensured through comprehensive EIA submission and review processes.



Solar panels generating electricity for Sardar Hasan village and surrounding hamlets in Phore, Lasbela

Natural gas is supplied to HITE and Hub Town. Gas connection figures are not available. Kerosene is the second largest source for lighting after electricity, but is expensive. LPG cylinders fill the gap for natural gas and firewood in urban centres for cooking purposes but are not used extensively due to their high cost and problems with supply.

## Power

Electricity is the main source of lighting in the district. A large number of industrial units and a limited number of businesses use electric generators or UPS during load shedding, which is common. Agricultural tube wells also suffer from load shedding. Electricity is supplied by the Karachi Electric Supply Company (KESC).

At the national level, current per capita electricity consumption (14 million BTUs as against 92 million BTUs for Malaysia) is low in Pakistan. A target of 162,000 MW of power generation by 2030 was projected in the Energy Security Plan (2005-2030) to meet the shortfall, as against the current supply of less than 18,000 MW. Leaving apart electric supply to industry, the situation in Lasbela District is even worse.

## Biomass Energy

Firewood is mainly used for cooking in urban centres and rural areas, where natural gas is not supplied. There is growing pressure on forest and rangeland vegetation resulting in the dwindling status of biomass energy sources for cooking. The progress in producing biogas, as an alternative source of energy, is rather slow despite the great potential for it in the district.

HUBCO Power Plant was developed as an Independent Power Plant (IPP) in the early 1990s and was funded primarily by the World Bank. It is a furnace oil-based plant, which supplies electricity to the national grid. HUBCO was involved in litigation with GoP for a long time in a payment issue and finally the case was settled through mutual consent. While it releases emissions, they are within the limits of NEQS.

Land has been allocated for a proposed oil refinery on the Gadani coast and some foreign investors have expressed an interest in it on a public-private partnership basis. The EIA would need to play an important role in this project.

Two proposed imported coal-based thermal power plants (AES and Mitsui Co.) were cleared by the Private Power Infrastructure Board (PPIB) a while ago and have been awaiting approval from BEPA on their EIAs. These or other thermal power plants are expected to be built here due to the suitability of this site.

### Key Issues

- Breakdown of power generation and conveyance systems, load shedding and fluctuation in voltage.
- Incomplete coverage of electricity.
- Steep rise in power tariffs and prices of fossil fuels.
- Considerable inconvenience to the public, industries, tube well owner-farmers, traders, transporters, commuters and others.
- High production costs for industrial products, transportation charges, and travel fares.
- Reduction in agricultural production to impact of load shedding and fluctuation in power supply for tube wells, which affects the water supply.
- Declining efficiency of the work force due to load shedding.
- Shortage of energy supply, in addition to other factors, which has obstructed the development of SMEs in the district outside of the industrial estates.
- Lack of progress in developing alternative energy such as solar energy, despite long sunshine hours and high radiation. The high initial cost remains a prohibitive factor.
- Conveyance losses in power, and theft and inefficient use of power by consumers.
- Defaulting of public sector agencies and commercial entities in payment of power and gas bills.

- Supply of electricity to agricultural tube wells on subsidised flat rates, resulting in ground water depletion.
- Bottlenecks for companies in procuring from speculative buyers and processing the EIA of thermal power plants by BEPA.
- Exploration in and exploitation of oil and gas from protected areas without environmental safeguards.
- Pollution from thermal power plants.

### Measures

1. Coverage of electricity and natural gas will improve and load shedding and fluctuation in power supply will be reduced.
2. Biogas plants for cooking and heating in rural areas will be promoted and supported.
3. Use of fuel-wood will be minimized, to reduce pressure on natural vegetation in wild lands and forests by promoting fuel-efficient stoves and alternatives such as coal and coal dust or bricks and biogas.
4. Agro-forestry and tree plantations of multiple purpose tree species including energy plantations will be facilitated and supported.
5. The use and regular supply of LPG cylinders will be promoted in urban areas through regulated marketing mechanisms that will be monitored to reduce pressure on vegetation in forests, rangelands and the outer countryside.
6. Efficient use of energy (tuning of vehicles; maintenance of household gadgets and tube well machinery; using energy-efficient machinery, equipment cooking stoves and saver bulbs; and energy audits of industries and businesses and taking remedial measures) will be promoted.
7. Metering of electricity tube wells will be introduced and a slab system of tariffs on the power consumed, subsidizing to a reasonable extent, will be adopted. Alternately, shift subsidy on power supply

to tube wells will be introduced for procurement and use of efficient technology-intensive irrigation systems.

8. Exploration of gas and oil in the district and off shore will be encouraged.
9. Development of power plants and refineries in the Gadani area will be encouraged, with environmental safeguards.
10. An independent, reliable power supply system will be instituted, especially in the wake of rapid industrial growth in the district, as opposed to obtaining the power supply from KESC as it does at present, which has been facing tremendous problems.
11. Solar energy will be exploited, which has considerable potential due to long radiation hours. Alternate energy development will be promoted, including off-grid solar PV, with subsidies for rural electrification, and solar thermal for heavy load, especially for dispersed application.
12. Suitable sites in the district for generating wind energy for localised application or for supplying to the national grid will be explored. The same will be promoted to the private sector.
13. Tidal and wave energy technology will be considered for future use.

## 9.6 Culture and Ecotourism

The vision of culture in IDDV is to preserve the cultural and religious heritage of all religions in the district as a resource for spiritual fulfilment, historical and economic significance for enjoyment by the present generation, and posterity and for creating harmony among the followers of different religions and ethnic groups. One goal of the cultural strategy will be to promote the cultural heritage across the district, province, and country, as well as internationally, to promote tourism, which will contribute to the district's economic development.

The National Vision 2030 aims to exploit the great potential of cultural, natural and religious tourism of the country to its optimum level for employment generation. Lasbela district will

adopt and implement this vision. The district wants tourism to be the seventh best income earner for the local people after industry, agriculture, livestock, fisheries, mining, and commerce and trade by 2025.

## Archaeological Sites and Historical Monuments

The most important prehistoric settlements in Lasbela District are Adam Buthi, Niai Buthi, and Balakot, which are located 80 km. south of Bela on the Khurkera plain. Adam Buthi, Muridani and sites dated to the historic period and the so-called Edith Shahr A and B Complexes are located north of Bela, closer to the mountains bordering the plain towards Jhalawan, while Niai Buthi lies more towards west. These zones are environmentally very different from one another.

Apart from one Islamic site, Kaiara Kot, which was first noted by Sir Aurel Stein, and sites dating back to the British Period, the southern central and eastern parts of Lasbela District are devoid of archaeological sites. This part is flooded during rains and, south of Sirinda Lake, through tidal waters, turning the whole area into a large, inaccessible mud plain.

The tomb of General Muhammad-Ibn-Haroon, who accompanied Muhammad-Bin-Qasim, is a place of historical importance in the town of Bela. On the western side of the Porali River is the tomb of Sir Robert Sandeman, made of granite and white marble and surrounded by beautiful gardens, which bears testimony to the cultural heritage of this town.

The Shrine of Shah Bilawal is located in Shah Bilawal village, west of the Tira Hub stream. Lahut-i-Lamakan is another shrine of repute that devotees visit in all seasons. It is located south of Shah Bilawal. The tomb at Himidan is located near the confluence of the Himidan rivulet and Hub River, about 85 km. from Karachi. The graveyard, in which these tombs are present, includes a large number of Muslim graves. The caves at Mai Goudrani, hewed out of solid conglomerate rock situated 20 km. to the north of Bela town, are worth visiting.

There is a spring called *Sassi Waro-Chodo* (Sassi's Spring), the heroine in the romantic legend of Sassi and Punnun. This place is located near *Paboni Naka*, about 68 km. from

Karachi. *Kumbh Shirin* Spring is on the western slope of the Haro or Hala hills on the route between Awaran and Karachi, which passes through Lasbela over *Jau-Lak*. The tomb of Shireen and Farhad is also located here; they are buried in one grave.

It is believed that *Hinglaj Maata*, a site in Hingol National Park (HNP), represents the remains of the skull top of the Goddess Sati, the divine consort or Sati of the God Shiva. The main shrines of pilgrimage (*Teertha Yatra*) for devotees of Maata Hinglaj are the ones dedicated to *Bhagwan Ganesh*, *Kalika Maata*, *Guru Gorakhnath Dhooni*, *Brahma Kund*, *Tir Kund*, *Guru Nanak Kharao*, *Ram Jharokha Baithak*, *Anil Kund* (located at Chaurasi Mountain), *Chandra Goop*, Khari River and Aghore Pooja.

The specific sites of worship for Hindus in the Hinglaj Mata gorge Chandargupt mud volcano, Aghore *Pooja*, *Ashnaan* (bathing by males and female separately) at the crossing of the Hingol River for Hinglaj gorge, and Liari *Pooja*.

In the Hinglaj gorge, the sites of worship are *Ganesh Pooja* (at the raised bank of the *Hinglaj* stream, where the new main parking area is proposed across the stream), which is a worship place and sacred pond, *Hanumaan*

*Pooja*, along the *Aneel Kund* track, at the start of the main complex of permanent facilities, *Ashapur Pooja*, in the main complex of permanent facilities, *Mallri Maata Pooja*, at the end of the main complex of permanent facilities, and at the main *Nani Mandar* in the cave, *Kali Maata* (at the ground level), and *Nani* (upstairs in a room). The cave is believed to have been used by a Muslim saint for worship/hiding).

The key built cultural heritage of Lasbela District is summarized in Table 15.

The religious and cultural festivals include (1) Pir Fida Hussain at Uthal, (2) Pit Muhiuddin at Bela, (3) Annual *Urs* of Baba Haji Taj Muhammad at Sonmiani, (4) Mela of Meeran Pir at Sonmiani and (5) Sassi and Punnu at *Mouza Mumbar* in Tehsil Sonmiani.

### Key Issues

- Lack of tourism-related infrastructure and facilities.
- Lack of interpretation and promotion of tourism assets.
- The requirement of NOC (No Objection Certificate)/visit permit issued by the provincial Home



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The Roomi Graveyard in Hub

**Table 15: Mining Built Cultural Heritage of Lasbela District**

Site/Period/Legal Status	Area/Location of the Sites/Salient Features
Nindowari Bronze age	<ul style="list-style-type: none"> <li>● 106x95.3m, height: 9m.</li> <li>● Located in Lasbela region between Porali and Kud river, 250 km from Karachi</li> <li>● Excavated in 1962</li> <li>● Yielded structure, figurines of bulls and humans, and beautiful pottery</li> </ul>
Bala Kot Bronze age	<ul style="list-style-type: none"> <li>● 180 x 144m plain level of 2.8 Ht. Located in Lasbela region 88 km northwest of Karachi</li> <li>● Excavated in 1973</li> <li>● Yielded Harrapan cultures artefacts and <i>Nal</i> polychrome type of pottery</li> </ul>
Gundriani 6,000 BC Unprotected	<ul style="list-style-type: none"> <li>● About 200 manmade chambers, each with a veranda and one room, made in a relatively vertical rock cliff of conglomerate formation. Mentioned by Captain Careless and others as the Buddhist dwelling.</li> <li>● <i>Chert</i> blades and coarse handmade pottery found indicate that these dwellings were built in the Neolithic period, about 6,000 BC.</li> </ul>
Adam Buthi Fourth Millennium: 3500-3000 BC	<ul style="list-style-type: none"> <li>● Adam Buthi is the earliest site discovered in south-eastern Balochistan. It was occupied around the mid-4th millennium BC and abandoned around 3000 BC, well before the height of the ancient Indus Valley Civilization</li> <li>● It is a small (0.14 hectares), but high mound (7.5 meters). The sections revealed several phases of super-imposed, well-built stone houses terraced along the slope of the mound.</li> </ul>
Niai Buthi Third Millennium: 3000-2500 BC	<ul style="list-style-type: none"> <li>● Niai Buthi is the most impressive early 3rd millennium BC site in the plain of Las Bela.</li> <li>● It is 13 hectares large and 13 meters high. Two trenches were opened in 1999.</li> </ul>
Murda Sang Third Millennium: 3000 - 2500 BC	<ul style="list-style-type: none"> <li>● Murda Sang is the largest prehistoric site in the Kanrach Valley (53)</li> <li>● It was discovered in 1997 and trial trenched in 1998</li> </ul>
Jamia Mosque Bela 1838 Unprotected	<ul style="list-style-type: none"> <li>● Located in the Bela town, built by Jam Mir Khan II</li> <li>● The architecture is based on the central Asian style of fourteenth century</li> </ul>
Tomb of Ibne Haroon 1600 AD	<ul style="list-style-type: none"> <li>● Located in the north of Bela town</li> <li>● Built of burnt bricks comprising a dome</li> </ul>
Graveyard of Jams of Lasbela 1800 AD Protected	<ul style="list-style-type: none"> <li>● Graves of Jam and Mengal families</li> <li>● Floral motifs in fresco on the graves</li> </ul>
Graves and Tombs 1400 AD	<ul style="list-style-type: none"> <li>● Graves and a canopy have been constructed in yellow sand stone with jewels, motifs and with some inscriptions of verses from the Quran</li> <li>● One tomb was built with burnt bricks</li> </ul>

Source: BCS (2000) and Balochistan Archaeology (<http://www.harappa.com/baluch>)

Department for foreigners for visiting places in the district is a negative factor for tourism. It also validates the concerns of the foreigners about the likely security situation.

- Insecurity in the central districts of the province is incorrectly attributed to Lasbela district, which acquires by association the same image as reported for other parts of the province.
- Most visitors make day trips, which do not contribute to significant income for the local people.

### Measures

1. Natural areas such as Hingol National Park, Hub Dam and Miani Hor Ramsar Sites, cultural sites and properties such as Hinglaj *Maata*, shrines, *Shahi* Mosque and other religious places, archaeological sites, and elements such as handicrafts and folklore will be preserved, interpreted and promoted for tourism.
2. There will be a focus on improving security conditions in the province.
3. Once security is improved, the province of Balochistan including Lasbela District will be opened to foreign tourists. The condition of visit permits will be eliminated, which prevents promotion of tourism as long as it is applied and enforced.
4. Archaeological and religious sites and natural areas for will be improved tourism and promotional packages will be developed.
5. A tourism marketing strategy (community-based for enhancing local people's income) and action plan for the district will be developed and implemented.
6. The private sector will be encouraged to develop tourism infrastructure including lodges, eating places and other tourist facilities and attractions.
7. Tourism assets of the district will be identified, interpreted and promoted.
8. Road infrastructure will be improved and tourist infrastructure will be developed including accommodation and cultural events in the evenings to motivate visitors to stay overnight or for longer periods.
9. Local educated youth will be selected and trained as tour guides and will be linked with national and international companies. Receptionists, cooks, porters, drivers, camel men, horsemen and other persons linked with tourism will be trained.
10. Codes of conduct for visitors, communities, tour guides and tour companies, transporters and drivers will be developed and implemented.
11. Sites for development of facilities for tourists will be identified and planned and projects will be prepared for investment by the private sector or PTDC if the private sector does not come through.
12. Federal and provincial government support will be sought for providing incentives to the private sector for development of tourism facilities.
13. Sports and local cultural activities as well as those relating to interpretation and promotion of tourist attractions in schools will be supported and encouraged.
14. Community-based tourism (accommodation and meals to be provided by community organisations at reasonable rates and ensure tourists' interaction with the communities for folklore, songs, music, dance, handicrafts) will be promoted. Involvement of local communities in visitor management and their participation in various tourist- or visitor-based livelihood pursuits will be improved.
15. Awareness and love for nature, including wetlands, mangroves, wildlife, protected areas, etc., will be created by sensitizing and educating visitors and allowing them to experience and enjoy nature.

## 9.7 Communication and Infrastructure

A network of metalled roads links all the major towns and villages of the district. Lasbela's major lifeline is the national highway from Quetta to Karachi. The coastal areas are

effectively served by the Makran Coastal Highway. A main road links Awaran, Kech and Panjgur Districts with Lasbela District; Dureji is linked to Hub Chauki and Karachi. Gadani, Sonmiani, Kanraj and Lakhra are linked with the Karachi-Quetta National Highway. In addition, there are metalled and shingle roads in most parts of the district. The length of the Provincial (C&W) black topped roads in District Lasbela is 115 km. The coastal areas are also accessible by sea. However, there is no airport, railway or seaport in the district; the air link to District Lasbela is from Karachi.

Telephone and internet services are provided by PTCL in the main towns as well as in some adjacent localities. There are seven telephone exchanges in the district. Mobile telephone services are provided by Ufone, Mobilink, WARID and Zong, but do not cover the entire district as yet.

### Key Issues

- There is no direct air link to Lasbela; the only link is from Karachi.
- There is also no railway or seaport in Lasbela.
- Lack of adequate telephone and internet coverage can pose a hindrance for businesses and negatively affect business development opportunities.

### Measures

1. Access via railway, air and sea will be improved.
2. Telephone and internet coverage for the entire district by PTCL as well as by mobile phone companies will be ensured.

## 9.8 The Private Sector and Public-Private Partnership

The revival of private sector investment with regard to deregulation, liberalization and privatisation, is a major element of the National Vision 2030. According to the World Bank (2007), the private sector has failed to make the right qualitative and quantitative investments in the domestic economy, despite a host of tax concessions and incentives. On the other hand,

the private sector's investment initiatives have been hindered by factors such as high prices of utilities, and administrative barriers to investment such as corruption, red tape and higher costs of inputs (such as fertilizer for the farming community) resulting from the ubiquitous imposition of 15 per cent GST.

In this context, privatisation of strategic assets in energy (looming shortages) may need to be re-examined, and separation of ownership from responsible corporate management practices must be reinforced. Public-private partnerships have been most successful in telecommunications (privatisation and management transfers) or in highways (construction and /or toll collection).

Such partnerships can also be extremely effective for sanitation and waste collection. New models for partnership are being experimented with in Pakistan at present. A policy and operational framework for fostering public-private partnerships is gradually evolving in order to facilitate provision of resources, technical expertise, outreach, and financial mechanisms. The private sector should be regulated to the extent that it does not stifle their initiatives, while the state should focus on institutional arrangements, performance assessment, licensing and accreditation of service delivery facilities, and quality assurance mechanisms.

Recent studies suggest that governance in the private sector needs significant improvement. Social accountability, observation of international norms in labour laws and right of association, together with environmental standards, need to be widely accepted and enforced in a speedy manner.

### Key Issues

- High prices of utilities and administrative barriers such as corruption, red tape and higher costs of inputs due to imposition of GST, negatively affecting private sector investment.

### Measures

1. Governance in the private sector will be improved.
2. Development of a policy and operational framework for fostering public-private

partnerships to facilitate provision of resources, technical expertise, outreach, and financial mechanisms will be ensured.

3. Privatisation of strategic assets in energy to counter potential shortages will be re-examined.

## 9.9 Macro-Economic Situation

Being adjacent to Karachi, Lasbela, especially its Hub, Gadani and Uthal Tehsils, is rapidly developing. The district has potential for further development of water, agricultural, fisheries, industrial, mining, livestock and poultry. The development of the industrial state of Hub and Windar has provided a good source of income for the people of Hub although populations in the rural areas live in poverty and without basic facilities.

The inactive textile, engineering and chemical industrial units need urgent attention from the government and investors and a Hub-specific policy is required.

The process of rapid development induced through incentives is often accompanied by lapses and oversight in regulatory controls, leading to lack of sustainability and over exploitation of resources, environmental degradation and marginalisation of some sections of the population, as can be seen by the industrial growth in Hub. The WB (2007)<sup>57</sup> identified the pillars, sectors and areas of economic growth in Balochistan: Natural Resources (marble and coastal fisheries in Lasbela District), value-addition in Industry hubs like Hub in Lasbela and support services in urban areas, e.g., Hub and Uthal Towns, and a business environment that can be enhanced with transport, education and information.

Agriculture, poultry farming and tourism are other important potential sectors for growth and a source of livelihood and poverty reduction in the district.

### Land Acquisition for Development

Many mega developments, both in the public and private sectors, are envisioned in the

district in the future, such as dams, industrial estates, thermal power plants, refineries, mining, tourism, and corporate agriculture, livestock and poultry, etc. Access to land for development needs to be fair to those who own or have usufruct rights (individuals or communities) as well as for those who require it for immediate use. The role of the middlemen and speculative buying needs discouraging, and a comprehensive strategy for land acquisition is required in this regard. A participatory approach for land acquisition through community consultations should be adopted.

The resettlement guidelines and framework developed by several donor-funded projects in Balochistan emphasize preparing an Entitlement Matrix and Resettlement Plan, which should protect the livelihoods and help avoid disruption in the lives of affected persons.

Prices should be paid at the current market level for all entitlements. The private sector, while setting up industries, should purchase lands directly from the owners, in consultation with the communities, at the current market price. The coercive provisions in Part II and Part VII of the Land Acquisition Act, 1894 should not be used in this regard.

### Water Development

The demand of water has increased manifold in the district due to the rapidly growing human population (requiring enhanced domestic water supply) and livestock (requiring water, fodder), expansion of agriculture (especially high delta fruit orchards e.g., banana and other fruits of wet tropics, vegetables) and expansion of industry. The pressure for meeting the increased demand has been mainly on the ground water in the district, although surface water was harnessed by constructing Hub Dam, mainly for supplying water to Karachi. The demand is growing continuously and calls for construction of more and more dams to bring large areas of current fallow (50,203 ha) and cultivable waste (893,190 ha) in the district.

**Hub Dam** was built in 1981 and the use of its water is shared by Sindh and Balochistan Provinces. It supplies water to agricultural areas and Hub Chauki through pipes and

canals. Its catchment area is about 7874 sq. Km., storage capacity 717000 acre ft., discharge capacity 370 cusecs, upper level 339 ft. (asl), length of Lasbela canal 33.8 km, length of spillway 1829 m and command area 8903 ha. The water share for Karachi (Sindh) is 109 MGD and 59 MGD for Hub (Balochistan).

Hub Dam is a Ramsar Site due to wintering of a large number of waterfowl. Hence, maintaining its ecological character is important.

**Windar Dam:** After completing the feasibility study, project planning and arranging funds, the construction of Windar Dam on the Windar River (seasonal) was launched in February 2010. Its command area falls in Kassi, Khurkera, Windar, Chhor and Dan villages of Sonmiani Tehsil of Lasbela District under the administrative control of the Uthal Irrigation Division. The construction of the Windar Dam Project will bring economic benefits to the inhabitants by bringing vast cultivable land under irrigation. Due to an assured water supply, cropping intensities and crop yields will increase and living standards of the inhabitants will improve.

**Hingol Dam:** The planning for construction of the Hingol Dam on the Hingol River for irrigation purposes is in its advanced stages. Its initial site near the Aghore Bridge (on the Makran Coastal Highway) has been moved up stream on the protest of Hindu *Mandli* (a religious organization) since the expected water level in the proposed reservoir was a threat to the *Hinglaj Maata /Nani Mandar* and access to this shrine would have been impossible. The dam, even up stream, will have negative impacts on Hingol National Park, especially on the ecology of the downstream part of the river including the Hingol Estuary. However, it will irrigate a large area for cultivation.

It is important that the state owned area of HNP is not given out for cultivation and people from outside the park area are not settled here. Mutation of the state lands within the notified boundaries of the HNP in favour of the Balochistan Forest & Wildlife Department needs to be completed by the Revenue Department to avert chances of transfer or encroachment by influential persons, as well as to avoid potential litigation.

Drinking water from the canal at the junction with MCH needs to be supplied to Aghore and other settlements through properly laid out PVC pipes. Environmental flow downstream the dam up to the estuary is also required essentially for survival of the dependent habitats, ecosystems and species of wild plants and animals including marsh crocodile, water birds and ungulates.

## 9.10 Sports and Tourism

**Sports:** Sports are a cost effective and easy source of recreation, inspiration and channelling youth enthusiasm in the right direction; and a way to develop team spirit, respect for rules, and a tolerant and positive attitude in youth. Football, volleyball, cricket and malakhra are popular sports in the district. Sea sports, despite their potential, are uncommon due to lack of affordability.

### Tourism

The vision for tourism in the district is to develop it as one of the main sources of livelihood for the people similar to agriculture, livestock and coastal fisheries. The strategy for tourism development would include interpretation and promotion of tourist attractions and destinations, capacity building of communities in community based tourism and as tour operators, skill development of community members as tour guides, sight planning and development of tourist destinations and provision of tourist infrastructure. The federal and provincial governments' support and economic incentives to communities and the private sector for tourism development will also be necessary.

The National Vision 2030 aims to exploit the great potential of cultural and religious tourism of the country (see Box 8). From a global tourism income of USD 514 billion, Pakistan's share is only USD 135 million i.e. 0.03 per cent. Out of the total tourist arrivals in the world estimated at 694 million per year, Pakistan receives only 0.5 million. The coastal areas including Lasbela District remain unexploited so far.

The district is rich in natural and cultural eco-tourism resources. Muslim and Hindu religious places throughout the district make Lasbela an attractive place for a variety of religious

followers . Lasbela’s tourism assets also include a pristine coastal zone along the Arabian Sea, which offers opportunities for long-term development of beach resorts and sea sports. The globally important and diverse terrestrial, wetland and marine resources are potential sources of ecotourism. The tourism resources in the district include:

## Hingol National Park

Hingol National Park is situated in Tehsil Liari of District Lasbela along the Arabian Sea. The park has an aesthetic landscape and scenic panoramas, sandy beaches, estuaries and carved figurines as well as religious, natural and geological sites of great importance. The site of *Hinglaj Maata* or *Nani Mandar* (temple) is a sacred religious-cum-cultural site located in the Hinglaj gorge in the Park. The Hinglaj area and the *Chandragup* and *Khandewari* volcanoes are major Hindu pilgrimage destinations in the park.

**Hinglaj Maata Site:** The Hinglaj area became one of the most important pilgrim sites believed to represent the remains of skull top of the Goddess Sati, the divine consort or Sati of the God Shiva. The access to the site of *Hinglaj Maata* in the distant past was via camel from Liari or Ormara and by sea from Karachi. The number of devotees at that time was very small, which increased gradually

with the dirt road connecting Ormara with Liari.

Until early 1980s, the *Hinglaj Maata* site, in terms of physical infrastructure, was only a natural point in the gorge, which opened on the upper side into a watershed inhabited by the Sind goat, urial and predators such as the common leopard. There was also a stream of clean water with native fish and other aquatic fauna. There were no built structures at the site of Hinglaj Maata and in the adjoining areas, and there was no solid waste at that time.

It was only with the construction of the shingle road and the Makran Coastal Highway that the number of *yatrees* and devotees increased and tourists interested in the natural (biodiversity and geology) and cultural attractions of the park also began to visit. Now, *yatrees*, devotees and visitors from all parts of the world visit the *Nani Mandar of Hinglaj Maata*. However, the growth of *yatrees* and tourists has not been managed well due to lack of proactive planning and facilities.

The main shrines for pilgrimage (*Teertha Yatra*) for devotees of *Maata Hinglaj* are the ones dedicated to *Bhagwan Ganesh, Kalika Maata, Guru Gorakhnath Dhooni, Brahma Kund, Tir Kund, Guru Nanak Kharao, Ramjharokha Baithak, Anil Kund* located at *Chaurasi* Mountain, *Chandra Goop, Khari*

### Box 8: National Vision 2030: Tourism Sector Objectives

(a) To enhance tourism activities, increase tourist arrivals, and make tourism an instrument for generating employment, alleviating poverty, and increasing foreign exchange earnings.

(b) To promote affordable, accessible and enjoyable domestic tourism and cultural and sports festivals; tourism of the religious sites and old civilizations; and foreign tourism linked to regional tourism particularly among SAARC and ECO countries and

(c) To enhance coordination between public and private sectors and upgrade resources to ensure desired standards of quality service.

The strategy would be to develop appropriate incentives to promote greater private sector investment in creation of tourist facilities. Public sector investment in the development of infrastructure facilities will be made part of overall national development effort. While the on-going projects will be completed as part of federal PSDP, the development requirements for new projects will be met from privatisation of existing motels (already started). Greater financial autonomy will be given to the public sector tourism agencies.

With the adoption of a holistic and integrated approach for tourism development, an emphasis on product development and promotion, linked with human resource development and through strategic alliances, there is considerable potential for tourism industry to grow over the vision period. This strategy will be developed in the context of high growth in regional prosperity and tourism, which will facilitate the prospects of increased tourism as part of multi - country travel and package tours. Vision 2030 incorporates specific programmes for promoting this goal.



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Chandargupt mud volcano at Hingol National Park

River and *Aghore Pooja*. The worship sites of some of these are:

- 1) Outside the Hinglaj gorge: *Chandargupt* mud volcano, *Aghore Pooja*, *Ashnaan* (bathing by males and female separately) at the crossing of the Hingol River for Hinglaj gorge, *Liari pooja*
- 2) In the Hinglaj gorge: *Ganesh Pooja* at the raised bank of the Hinglaj stream ( the new main parking is proposed across the stream there), place of worship place and a sacred pond along the *Aneel Kund* track, *Hanumaan Pooja* at the start of the main complex of permanent facilities, *Ashapur* worship in the main complex of permanent facilities, and *Mallri Maata* worship at the end of the main complex of permanent facilities
- 3) At the main *Nani Mandar* in the cave: *Kali Maata* (at the ground level), *Nani* (upstairs in a room), the Cave (believed to be used by a Muslim saint for worship in isolation).

Although religious worship gatherings at *Nani Mandar* are held on certain dates during all months, the annual gathering takes place every spring. Weather and flood conditions in

the Hingol River are the main considerations when fixing specific dates for the gathering.

**Opportunities:** There are several opportunities for benefitting from the natural, cultural and religious resources of the HNP. These include:

- Creating awareness and love for nature and support for the Park by sensitizing and educating visitors
- Expanding the *yatree*/tourist base; enhancing the cultural (non-religious) ecotourism in this area; organizing services for yatrees, devotees, tourists and visitors; and enhancing community participation and local livelihoods.

Other important tourist destinations are:

1. Gadani Beach
2. *Dam Bandar* (fish landing site)
3. Sonmiani Bay/Miani Hoar (A Ramsar Site, important for migratory water birds, angling and fishing, mangroves, dolphins, sand dunes)

4. Dureji Game Reserve (important for Sind goat, urial, chinkara gazelle)
5. Hub Dam - (A Ramsar Site, important for migratory water birds, angling and fishing (including Mahasheer). The western part of the reservoir and dam is in Lasbela District)
6. Hub River, known for its marsh crocodile population and other aquatic biodiversity
7. Shahi Jamia Masjid (mosque) of Bela
8. Sassi Waro-Chodo (Sassi's Spring near Paboni Naka)
9. Kumbh Shirin Spring
10. The tombs of General Muhammad-Ibn-Haroon, Sir Robert Sandeman, Sassi, and Shireen and Farhad
11. The Shrines of Shah Bilawal in Shah Bilawal Village at Hamidan Hub River
12. Lahut-i-Lamakan, about 6 kms. from Shah Bilawal Village
13. Pir Fida Hussain, Pir Moosiani, Pir Mohiuddin, Mai Gondrani, Karia Pir at Bela
14. Popular *Melas* (festivals and *Urs* include Pir Fida Hussain at Uthal, Pir Muhiuddin at Bela, Sassi and Punnu at Mouza Mumbar, Tehsil Sonmiani, Annual *Urs* of Baba Haji Taj Muhammad at Sonmiani, and *mela* of Meeran Pir at Sonmiani).

## Measures

1. Sports will get support and patronage at all levels, from government, civil society organizations and the public for developing and maintaining sports infrastructure (play grounds, a sports complex or stadium, as well as for providing services such as coaching and health and fitness).
2. Sports will be strengthened in educational institutions, in particular schools, and local and district teams of volley ball, football,

cricket, hockey and *kabaddi* as well as individual players of *malakhra* (wrestling) will be encouraged.

3. Whereas the rapid increase in visitor numbers at *Nani Mandar* of yatrees, especially at the annual gathering, has created problems, it has also provided economic opportunity. The Management of Hingol National Park has prepared site plans for five tourist destinations in the park in 2009, which will be implemented.
4. Arrangements will be made to accommodate the growing number of yatrees and devotees through visitor management and staggering visitation between various events and festivals through information, awareness raising, and proactive planning.
5. A high and sufficiently long bridge on Hingol River for safe crossing of visitors and their vehicles will be constructed.
6. Excavations on hillsides in the Hinglaj gorge in general and the main complex in particular will be avoided for expansion of construction.
7. Clean drinking water in the Aghore-Hinglaj area for visitors and local people from the proposed Hingol Dam will be made available.
8. The Code of Conduct for visitors and the local people, as suggested in the Ecotourism Study Report of Hingol NP, will be widely and frequently dissemination and will also be implemented. This includes avoiding water pollution, disturbance to wildlife due to noise, honking and blowing horns, bright lights of vehicles, playing loud music and respecting the local people and their traditions, etc.
9. Involvement of local communities and local people in visitor management and tourist or visitor based livelihood pursuits will be increased. Mistrust between the Hindu *Mandli* and the Park Management will be addressed.

# 10. Disaster Management

## Disasters

Lasbela District is vulnerable to a host of disasters including tsunami (1945), cyclones (Phet – 2010), floods, landslides, mudslides, earthquakes, droughts (1998-2004), locust attacks, transport, industrial and mining accidents, and excessive heat waves. Potential disaster risks include oil spills in coastal waters, fire and industrial accidents, especially in industrial and urban centres, and dam bursts.

Lasbela was ranked as a severely affected<sup>58</sup> area by drought. The relative severity of drought in Lasbela District is medium. The relative severity<sup>59</sup> of floods in the district is high. There is low incidence of earthquakes, locusts and pests, transport accidents, and tsunami.



58 United Nations Department for Economic and Social Affairs. Area Development Programme Balochistan. PAK/96/006. [Social Assessment Study on Water Scarcity in Balochistan](#). Islamabad: UNDP, December 2000.

59 Government of Balochistan. Balochistan Disaster Management Authority. [Balochistan Disaster Risk Management Plan](#). Quetta: GoB, 2008.

A number of terrorism and sabotage incidents<sup>60</sup> occurred from 2002-07 including 18 bomb blasts, one land mine, one hand grenade, and one rocket fire. These caused seven fatalities and 24 injuries. There are three ambulances and six fire brigades in Lasbela district for emergency response.

The government of Balochistan has established the Provincial Disaster Management Authority (PDMA) and developed a Disaster Risk Management Plan, 2008. Its implementation is awaited. The Plan discusses in detail the strategic areas, focus, outputs, indicators and implementing agencies.

It is important to understand that planning and management of evacuation, rescue, relief and rehabilitation operations are primarily the responsibility of the District Administration with support from all departments and agencies in the district, and that all outside agencies play a supportive role. Notwithstanding the availability of funds, machinery and equipment (or lack of it), the district administration and all other departments and agencies should always be ready to perform their planning, management, information and coordination roles in case of any disaster.

Common issues and measures relevant to all disasters are given below; disaster-specific issues and measures are given below each topic:

### Key issues

- Lack of district-specific Disaster Risk Management Plan.
- Implementation of the Balochistan Disaster Risk Management Plan could not be started due to low priority, weak governance and lack of funding.
- Lack of warning systems for tsunamis, cyclones, droughts, floods and earthquakes.
- Lack of preparedness and poor capacity to handle any disaster.
- Low quality of design, construction materials and workmanship of

infrastructure, including mud and thatch houses, bridges, roads, etc.

- Lack of land use and development planning control.
- Existing emergency response machinery and equipment are not enough to meet the needs of any large or small disaster in Lasbela District.
- Total reliance on support from provincial and federal governments, which limits local capacity to take swift action.
- Loss of life, property and livelihoods.

### Measures

1. The Disaster Risk Management Plan for Lasbela District will be developed and implemented.
2. The capacity of all institutions to play their role effectively and cohesively in case of any disaster will be developed. Training will be provided to CBOs, staff of public sector agencies, community activists and other groups in the district to develop this capacity.
3. Capacity of police, relief workers, healthcare workers, fire fighters, etc. will be developed so that they can respond swiftly and effectively to any disaster. Health facilities will be equipped to handle large numbers of emergencies resulting from disasters.
4. Civil Defence will be strengthened, and volunteers will be enrolled and their capacities built.
5. Mock exercises will be conducted periodically as a part of training for everyone, thereby raising public confidence.
6. Adequate budgetary allocations will be provided for capacity development.
7. The priority of disaster risk management at the national, provincial and district levels will be raised.

8. Awareness of disasters including causes and measures, the set-up of the disaster management system, and the roles of various agencies including Civil Defence will be raised.
9. Preparedness for swift action in case of a disaster will be maintained, at least for the initial hours or days, until such time as provincial and federal help becomes available.
10. Land use planning and implementation and development planning control through legal means will be ensured.
11. The design, appropriateness of construction materials and workmanship of infrastructure including houses, bridges, roads, etc. will be improved.
12. Housing (mud and thatch houses) and settlements will be upgraded.
13. Social services, basic facilities and natural resources will be rehabilitated.
14. Livelihoods of communities and affected groups after any disaster will be restored.

## 10.1 Earthquake

The district experienced major tectonic upheavals in the prehistoric period. The coastal uplifting resulted in the formation of a number of temporary inland lakes, such as the one now represented by the broad inland valley of Tranche. Large coastal lagoons such as the Miani Hor at the coast of the Lasbela plain are also a product of uplifting. The Dhak plain in the coastal area of Hingol NP is also a former inland bay, which had an opening to the sea between Sapat and Poti *Bandar* (Wadh *Bandar*) west of Sappat Mountain (Jebel-u-Ghurab). However, no major or devastating earthquake has been recorded in the recent past.

The greater part of Lasbela District is in Seismic Category III, i.e., moderate risk, and its coastal areas are in Category II, high risk in terms of severity, impact and damage from earthquakes. The seismic factor ground acceleration may vary from g/10 to g/20 with possibility of minor to moderate damage.

## Key Issues

- Use of inappropriate construction materials in rural housing such as prevalence of mud houses

## Measures

### Institutional Arrangements

The Provincial Disaster Risk Management Plan has identified the following institutional arrangements:

### Provincial Disaster Management Commission (PDMC):

A Provincial Disaster Management Commission (PDMC), chaired by the Chief Minister, will be established, since disaster risk management is a provincial subject.

### Provincial Disaster Management Authority (PDMA):

A Provincial Disaster Management Authority (PDMA), which serves as the Secretariat of the Provincial Commission and is headed by a Provincial Director General will be established. The Authority's mandate is development, implementation, monitoring and evaluation of disaster risk reduction activities in vulnerable areas and sectors in the province.

District Disaster Management Authorities will be established by the provincial government in hazard prone areas on a priority basis. Municipal Disaster Management Authorities (MDMA) will be established in urban areas on similar lines.

**Tehsil and Town Authorities:** Institutions at this level are at the frontline of disaster risk reduction and response. For many departments this is the lowest level of administration where they interface directly with communities.

**Union Councils:** Elected representatives from village and ward levels form these bodies, which play an important role in allocation of resources for local development works. Union Councils are also crucial for advocating demands of communities to the District Councils and Disaster Management Authorities. These may include requests for allocation of resources from local budgets for hazard mitigation and vulnerability reduction activities such as spurs for flood control, rainwater harvesting structures for drought

mitigation, vocational training for livelihoods to reduce vulnerability, etc.

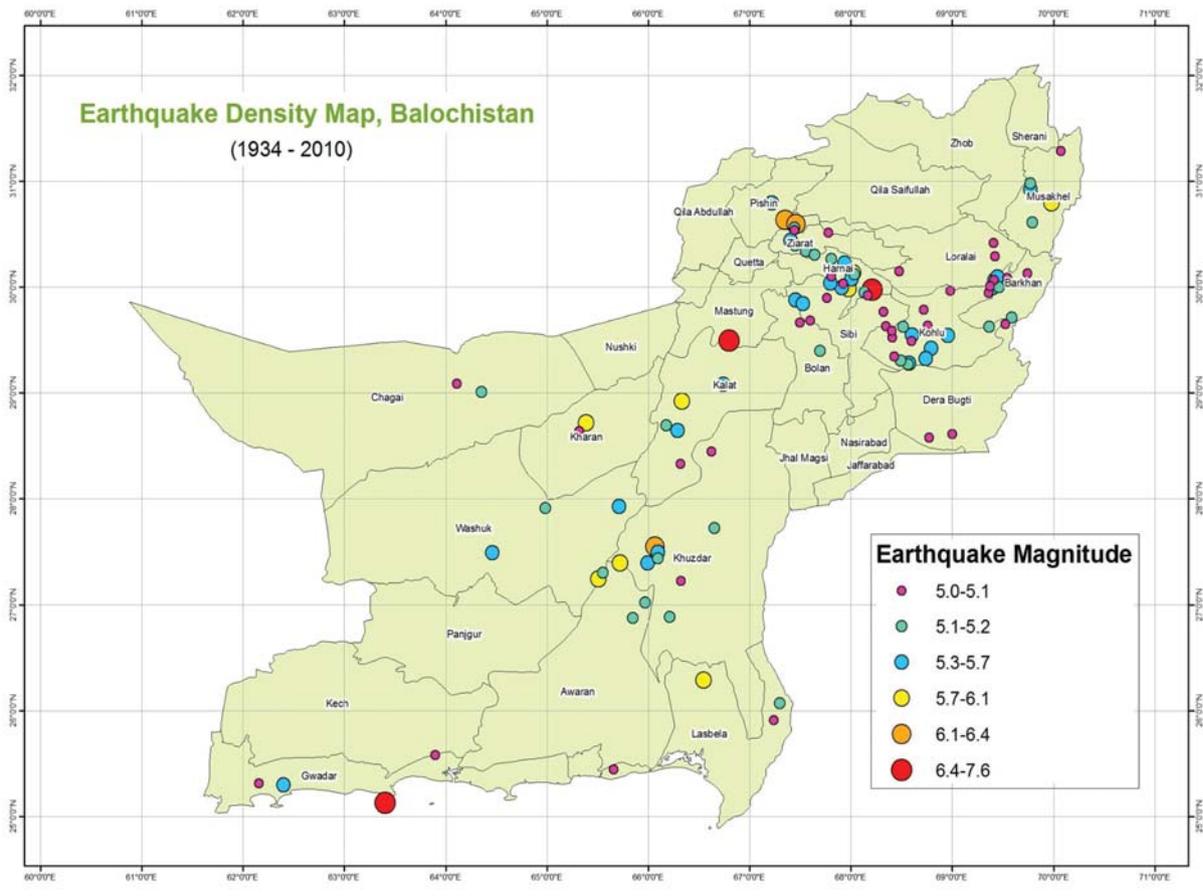
**Community Based Organizations:** The capacity of existing community-based organizations will be developed and enhanced by district and Tehsil authorities to promote community level disaster risk management activities. In the absence of community organizations, new groups will be established to work on disaster risk reduction and management.

**District Police Department:** The District Police Department is responsible for these functions with reference to disaster risk management: maintenance of law and order in and around the scene of the incident; cordoning the affected area and controlling crowds to facilitate the rescue operation; and providing rescue workers with all relevant assistance to carry out emergency work without any disturbance or interference.

The following Provincial Government Departments and other stakeholders also have important roles in Disaster Management and Control: Irrigation and Power; Environment and the Environment Protection Agency; Health; Public Health and Engineering (PHE); Planning and Development; Finance; Communication; Works; PP&H (C&W); Information Technology; Legal; Information; Women Development; Traffic Police; Fire Brigade; Civil Defence; Provincial Meteorological Department; local nongovernmental organizations, and Major Hospitals.

Other Stakeholders are QESCO; Sui Southern Gas; Civil Aviation Authority; Ambulance Services; Balochistan Coastal Development Authority (BCDA), Quetta Development Authority (QDA); Water and Sanitation Authority; Banks; Private Sector; Media; Pakistan Red Crescent Society – Balochistan Branch; and local non-governmental, academic and research institutions.

**Figure 19: Map of Earthquake Density of Balochistan**



The disasters relevant to Lasbela District have been discussed above. Severe disasters are managed by federal and provincial agencies but they cannot deliver without local support and meaningful participation by all concerned. Institutional arrangements, therefore, will be made at the district level for linking with and supporting the national and provincial efforts as well as identifying what is required, providing feedback and proactively doing whatever is possible at the district level. The district will develop a preparedness strategy of response to these disasters. An Earthquake Density Map of Balochistan is given.

## 10.2 Drought

An emergency water shortage can be caused by a prolonged drought, poor water supply management, and/or contamination of surface water source or aquifers. Droughts also create environmental conditions that increase the risk of other hazards such as fire.

The annual precipitation in Lasbela varies from 50-150 mm, most of which is expected during the monsoon season. Long periods of droughts are common; the last one occurred from 1998- 2004.

### Key Issues

- Lack of data and capacity of interpretation and analysis
- Lack of a strategy and plan to reduce damage, manage drought-related relief and undertake rehabilitation in the district
- Lack of alternative means and options for overcoming droughts
- Lack of facilities for speedy processing and marketing of livestock products and refrigeration of large quantities of meat

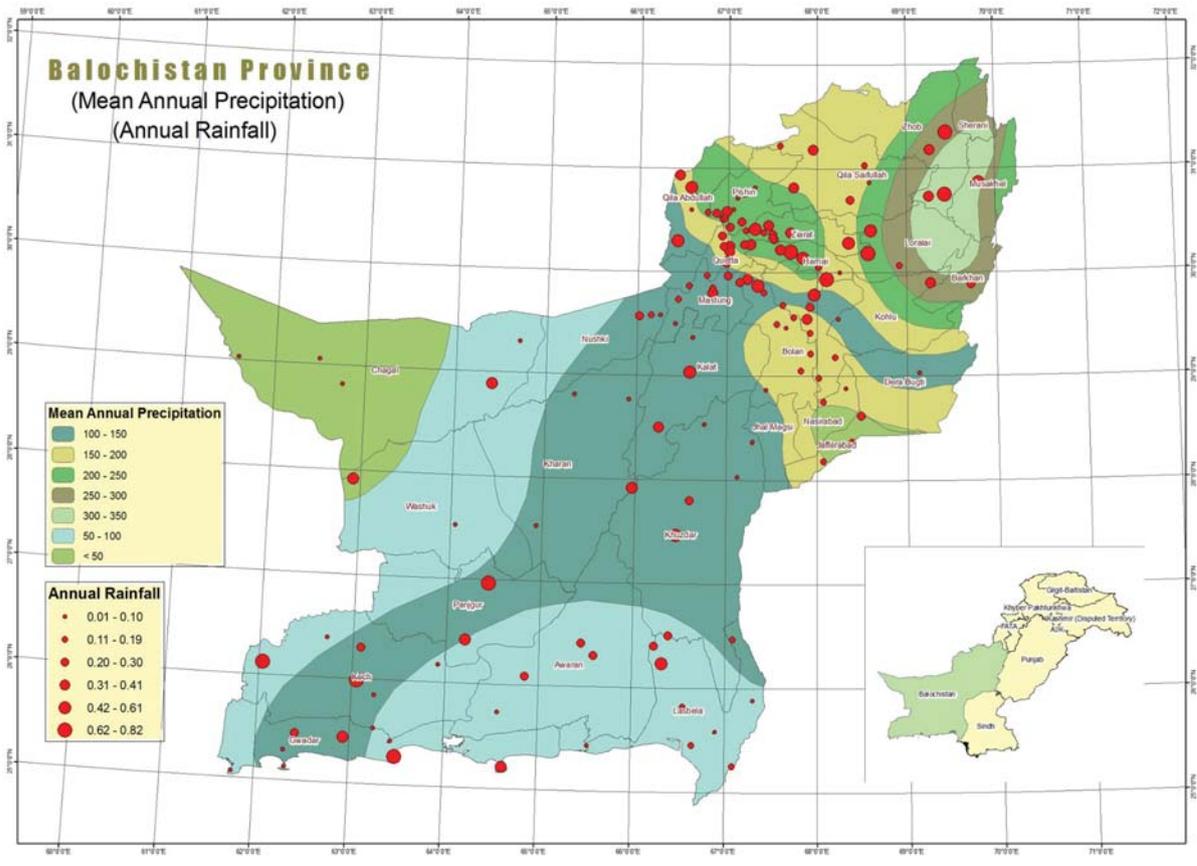
### Measures

1. Mass level awareness raising and training of extension staff and community will be provided on:
  - Strategy to respond to drought

- Domestic level water conservation techniques
  - Use of technology-based, efficient irrigation systems such as drip, bubbler, and sprinkler
2. Capacity of public sector organizations, grazers, farmers, CSOs, and CCBs in preparation for drought, coordination, information dissemination, relief and rehabilitation will be developed.
  3. The Disaster Risk Management Plan for Lasbela District will be extrapolated from the Provincial Plan and implemented.
  4. Water will be conserved to cope with droughts, since this will ensure that water is available for critical needs.
  5. Water will be conserved in homes: low-flush toilets will be installed, displacement devices will be used in toilet tanks and dripping faucets will be repaired.
  6. Early marketing of less productive and lean livestock will be facilitated to reduce the numbers.
  7. People and livestock will be shifted to areas less affected by drought and will be provided appropriate assistance.
  8. Water, health (vaccination and treatment) and feed (urea molasses blocks and urea treated straw) requirements of livestock will be met.
  9. Low delta crops in drought-prone areas will be grown.
  10. Potential droughts at the district level will be monitored continuously through observation of quantity of rainfall and comparison with existing water needs.
  11. Damage and loss will be reduced by ensuring preparedness regarding planning, implementation and monitoring of mitigation, relief and rehabilitation measures.
  12. Water will be conserved through rainwater harvesting for use during dry conditions.

13. Certain areas of rangelands will be used for grazing only during droughts.
14. Fodder-tree groves will be raised at appropriate sites for use only during periods of drought.
15. Livestock pens and water points will be provided within grazing areas and at make-shift sites to tide over the drought period.
16. Speedy marketing of livestock to reduce losses from drought will be facilitated and supported.
17. Mobile facilities for hygienic slaughtering and refrigerated storage vans will be arranged along with rational purchase prices to motivate owners to sell their livestock, which they cannot afford to maintain or which is likely to die because of drought.
18. Livelihoods in various parts of the district will be planned and promoted keeping in view the effect of droughts.
19. The federal government will establish a satellite monitoring system for Balochistan, Sindh, Southern Khyber Pakhtunkhwa and Southern Punjab for monitoring and early warning of droughts, interpretation of data and dissemination of information as relevant.
20. The GIS facility at the Provincial Headquarters will be strengthened to prepare district-wise Climatic Moisture Index (CMI) and Soil Moisture Index (SMI) maps with the help of Remote Sensing and GIS facilities.
21. A Disaster Emergency Fund will be established at the national, provincial and district levels with reasonable allocations for floods, drought and cyclones.

**Figure 20: Annual Precipitation in Balochistan**



## 10.3 Flood and Landslides

Floods are one of the most common hazards in Lasbela District. The effects vary from local level impact to entire river basins. Flash floods develop quickly, sometimes in a few minutes, without any visible signs of rain. Flash floods often have a dangerous wall of roaring water that carries rocks, mud, and other debris and can sweep away most things in its path. Overland flooding occurs outside a defined river or stream and is often destructive. Flooding can also occur when a dam breaks, producing effects more serious than flash floods. People living in low-lying areas or coastal areas, near river, canals or downstream from a dam, face additional risk from flooding.

The Porali River and the Phore stream (near the eastern boundary of HNP) carry flash floods that have often destroyed or damaged bridges on the Karachi Quetta National Highway and MCH, blocked traffic and caused inconvenience to commuters. Flash floods affect highways and roads at many points as well as houses and other infrastructure. Floods also damage sewerage systems and storm water drains in urban centres and cause landslides, mudslides and soil erosion.

In a landslide, masses of rock, earth, or debris move down a slope. Landslides may be small or large, slow or rapid. They are activated by storms, earthquakes, fires, and steepening of slopes by erosion or human modification. Landslides are more common in the district during flash floods and indirect impacts of cyclones, which cause heavy downpour.

### Key Issues

- The natural drainage for water has been blocked or narrowed, resulting in further havoc.
- Calls for evacuation are delayed, and there is no facilitation for the poor, old, young or sick people during an evacuation.
- People are reluctant to leave, mainly due to absence of measures to ensure safety of their property, unless it is already too late.
- Lack or shortage of safe drinking water, food, utensils, soap, detergents, shelter; spread of diarrhoea, gastroenteritis, skin and other water borne diseases; and lack or shortage of health care facilities for flood affected persons.
- Loss of life of or injury to human beings, livestock and wildlife (especially mammals, reptiles and the breeding and nesting areas of birds).
- Damage to or destruction of houses, valuables, food grains, other household commodities, sources of clean water, machinery, equipment, vehicles, land, soil, orchards, standing agricultural crops, etc.
- Disruption in supply of electricity and gas, and destruction of or damage to communication infrastructure, making provision of relief supplies difficult.
- Enhanced risk of dam bursts, landslides and mudslides.

### Measures

1. Precautionary measures will be taken in planning, designing, implementing, maintaining and monitoring of all types of communication infrastructure, housing and settlements and water-related infrastructure, based on 100 year-projections of severe floods. This will help reduce losses and damages from flash floods.
2. Landslide hazards will be evaluated and corrective techniques will be developed to reduce landslide risk.
3. Channels or deflection walls will be built in mudflow areas to direct the flow around buildings and other infrastructure.
4. It will be ensured that natural waterways are not blocked or disrupted and alternatives will be provided if this is unavoidable.
5. Preparation will be made for landslides at vulnerable places and relevant machinery and equipment will be kept ready for clearing affected areas, in particular highways, roads, bridges, houses, etc.
6. Ground cover using bioengineering technology (e.g. placid structures) will be

built on slopes. Retaining walls will be built as well.

**In the event of a flood or landslide:**

- Make timely calls for evacuation and help those who cannot vacate on their own
- Ensure swift and organised rescue and relief for all affected persons
- Replant damaged ground as soon as possible since erosion caused by loss of vegetation can lead to flash flooding and additional landslides in the near future

cleared and maintained; fire-fighting equipment in sufficient numbers will be kept ready at a central place; and a group of volunteers from local communities will be developed and trained in forest fire fighting.

7. Bush and grass around houses and settlements located within or around forests and rangelands will be cleared.
8. Availability of a helicopter to rescue stranded persons will be ensured.
9. Exits (other than lifts) and outer stairs will be incorporated into the design of all high buildings for use during fire.

## 10.4 Fire

Housing and settlements, industrial estates and properties, coalmines, oil and gas fields and pipelines, petroleum and gas stations, stores of explosives, forests during dry hot season, and picnic areas, are very vulnerable to fires.

### Key Issues

- No attention paid to preventive measures

### Measures

1. Greater focus will be placed on awareness raising and preventive measures.
2. Compliance with a Code of Conduct by picnickers and communities in forests and protected areas will be sought.
3. Fire brigades will be provided with required fire control equipment including long ladders and water hoses for high-rise buildings, and fire extinguishing supplies (water, chemicals, etc.).
4. Fire fighters will be provided adequate training of fire fighters. Their availability in all urban and industrial areas will be ensured.
5. All common passages on all floors of buildings will have fire extinguishers and buckets of sand, and water, towels and red flags for help in all rooms.
6. Fire lines in vulnerable dry forests will be

## 10.5 Cyclones

Lasbela District is located on the coast of the Arabian Sea, which is a part of the Indian Ocean and is known for cyclones and tsunamis. Tsunamis are more severe in gravity than cyclones.

The neighbouring Sindh province has experienced several cyclones in the past few decades. Fourteen cyclones approached the coastal areas of Sindh from 1971-2001. The 1999 cyclone hit the Sindh coast and caused serious damage in terms of lives and property in Thatta and Badin districts; 73 settlements were wiped out, with over 75,000 houses destroyed. A cyclone in 1965 killed over 1000 people in Sindh, while the most recent cyclone, which hit two districts in Southern Sindh, killed 258 persons, affected 600,000 persons and also killed 11,000 livestock. Economic losses were severe since agricultural lands and crops were inundated and household belongings destroyed.

The Makran coast has also suffered from at least three cyclones during the past five years; the last one was Phet, which ravaged the Makran coastal areas and the Indus delta in 2010.

### Key Issues

- Difficulty in informing fishermen engaged in deep sea fishing about impending cyclones
- Cyclones generate heavy rains, which cause flooding and consequential loss and damage

## Measures

1. Ways to convey information about impending cyclones to fishermen engaged in deep sea fishing will be developed.

## 10.6 Sea Erosion

The major reasons for sea erosion are a rise in sea level due to global warming and reduced inflow of fresh water to counter the tide action on the coastline. This process is further aggravated when the coastal land is sandy or offers low resistance due to the absence of a strong network of roots of mangroves or clayey profile of land. Sea erosion is currently (2010) taking place on the coast of Damb near Sonmiani.

A short-term measure would be to construct a *pucca* embankment of boulders and stones at the affected site after the monsoon season when the tide level and action subsides. The long-term solutions include raising of mangrove plantations and ensuring environmental flows when the water of the feeding rivers has been dammed.

## 10.7 Tsunami

The earthquake measuring 8.6 on the Richter scale that hit Balochistan on November 28 1945, at 05:26 PST, caused a huge tsunami in the Arabian Sea. It was centred 97.6 km SSW of Pasni in Balochistan and caused great damage to the entire Makran coastal region including Lasbela. The tsunami reached a height of 40 feet in some fishing villages on the Makran coast and killed more than 4,000 people (there was an extremely low population on the coast at that time). The villages of Pasni and Omara were badly affected and were reportedly underwater after the tsunami. Pasni's postal and telegraph office, government buildings and rest houses were destroyed and many people were washed away. Telegraphic communications to these two communities were also cut off. The cable link between Karachi and Muscat was interrupted, and the Cape Monze lighthouse, close to the south-eastern border of Lasbela, was damaged. The shock was recorded by observatories in New Delhi and Calcutta.

Several mud volcanoes in Lasbela District including the famous *Chandargupt* in HNP

erupted due to that tsunami and four small islands off the Makran Coast were formed. This was the last known major tsunami-generating earthquake in the Arabian Sea that severely affected the Makran coast.

The recent mega tsunami in the Indian Ocean that hit many Asian countries including Indonesia, Sri Lanka, the Andaman Islands, Timor-Leste, Thailand, India and Myanmar generated more interest in the international community than ever before. The examples of relief and rehabilitation during this time need to be studied to ensure preparedness for such eventualities in future.

## Key Issues

- Deforestation and degradation of mangroves and removal of sand and sand dunes from the coastal areas, weakening the defence against the impact of tsunami.
- Lack of land use and development planning control in the coastal areas of Lasbela District impact on the development of environmental friendly and safe industrial and other infrastructure close to the sea.

## Measures

1. A tsunami forecasting centre in the Region will be established and linked with other centres including the Hawaii Centre.
2. Mangroves will be conserved and planted in Miani Hor and a moratorium will be imposed on removal of sand from the coastal areas.

## 10.8 Oil Spills

The coastal areas of Lasbela District are vulnerable to oil spills due to the heavy traffic of oil tankers from the Gulf to Pakistani ports (Karachi, Gwadar) through the Arabian Sea or other countries of the East, proximity to oil producing Middle Eastern states, and because of off shore oil exploration and exploitation in the EEZ of Pakistan.

Fortunately, no major incident has happened so far. Even the Tasman Spirit Oil Spill (TSOS) in 2003 in the Karachi Port area did not affect

the Lasbela coast due to the opposite wind direction.

However, this does not mean that threats do not exist. The approval and implementation of an Oil Spill Contingency Plan for the Balochistan coastal waters and areas is necessary. The Pakistan Maritime Force, Karachi Port Trust, Coast Guards and the Pakistan Navy have a critical role in ensuring this.

## 10.9 Dam Burst

Pakistan has a limited history of burst dams with the most serious incident occurring in the neighbouring district of Gwadar where the Shadi Kaur storage dam on the Shadi Kaur River burst in a flash flood and caused heavy losses to the Makran Coastal Highway and to settlements downstream. The maintenance and operation of the existing Hub Dam, the proposed Hingol and Windar Dams, and other future dams is, therefore, important.

The designs of the dams should use the experience of floods during the last 100 years. It is also important that development of permanent infrastructure including settlements and roads is not allowed within the original width of the riverbed downstream after construction of a dam. All dam structures including gates of spillways should be maintained regularly.

## 10.10 Excessive Heat/Heat Wave

People working in open under the sun and those living in urban areas may be at greater

risk from the effects of a prolonged heat wave, and excessive heat can be deadly. Conditions that can induce heat-related illnesses include stagnant atmospheric conditions and poor quality of housing or work conditions.

### Key Issues

- The district is situated in the hot tropics and is also affected by global warming.
- Most of the population in the district is rural and is dependent on agriculture, livestock, coastal fisheries and industry. The people have to work hard, often under the sun, for their livelihood, and are, therefore, vulnerable to dangers from heat.
- High humidity in the coastal areas compounds the effect of heat.
- A large section of society cannot afford proper clothing and other gear, due to poverty, which can help alleviate some of the damaging effects of heat.

### Measures

1. The Meteorological Department will warn the people about excessive heat and heat waves.
2. The Health Department will monitor the situation and advise people regarding precautionary measures and treatment through electronic and print media.

# 11. Information Management and Communication

The vision is for the free flow of all kinds of information from government agencies to the masses, specific target groups and other users. Setting up of a comprehensive GIS- based database and a website for the district are envisioned for wide dissemination of information.

It is important that people are able to obtain information that they require; information is also essential for maintaining transparency and public sector accountability.

Information refers to all aspects and sectors: the social sector, NRM sectors, environmental parameters, sustainable development; policies, plans, programmes and projects; statistics, data, research papers and studies; the positions of the federal, provincial and local governments on any controversial issue; and information needed by people in their daily life such as laws, rules, regulations, orders, public sector systems, procedures and formalities. Information is also needed by the public for livelihood opportunities including employment, technology and investment.



Information management at the district, tehsil and union council levels is almost non-existent. While it exists at the provincial level, it is not adequate. Timely and direct clarification provided by public sector agencies motivates the public to participate in public sector-led programmes, projects and activities.

The Statistical Cell in the Planning and Development Department is now active after a long period of dormancy and compiles Balochistan Development Statistics annually, which contain district specific information at the apex level. Coverage of education, health, agriculture and livestock sector statistics is comparatively better than for other sectors. Inadequate and outdated information on the Planning and Development Department website is also an issue.

The Balochistan Education Management Information System (BEMIS) and the Balochistan Health Management Information System (BHMIS) have established a system at the provincial level for spatial/temporal data manipulation and decision making with nodes at the district level. This is useful for planning, management and monitoring and must also be used optimally at the district level.

HMIS data can also be used to decide to take timely decisions regarding drug procurement and supply to health facilities, health education on current pandemics, as well as for support staff supervision. These systems if used correctly can come up with data aligned with implementation of MDGs targets.

Computerization is crucial for efficiency, accuracy, and cost effectiveness as well as for developing management information systems that can help in appropriate and speedy decision-making. Fortunately, it is now affordable and institutions today can use information technology to enhance their efficiency.

Geographic Information Systems (GIS) offer a set of effective tools to increase efficiency in decision-making, transparency, and demonstrate public accountability. All over the world, the use of this technology at the municipal level has shown highly successful results in handling diverse data of various scales. Even in Pakistan, pilot projects that have used the GIS facility, have produced remarkable results. The GIS system of TMA, Jaranwala is one such example.

In order for the GIS to evolve into a proper Decision Support System, it must have as many data layers as needed. GIS application can help in sustainable development, sustainable management of natural resources and environmental protection; and in planning, management, monitoring and evaluation of programmes and projects.

In order to computerize and handle the enormous amount of data at the provincial level, a basic Geographic Information System has been established to meet the overall needs of the province. A comprehensive GIS-based database is also required at the district level that is connected to all district heads as well as to the provincial database. Such a network would enhance the efficiency of the district administration manifold.

## 11.1 Means of Communication

**Public Access to information:** If they are to demand quality services, consumers need access to the following information:

- What they should be entitled to in terms of service delivery from the different tiers of government, including the types, standards, and funds allocated for service delivery, and their performance benchmarks in the district.
- The role of government officials in service delivery.
- The role of public representatives in service delivery and their responsibility for provision of education, health and WatSan services.
- Where and how to complain if services are not adequately provided.
- All levels of government – federal, provincial, and local – need to ensure that the public gets adequate information regarding its rights. Information can be provided in the following ways:
- Educational, Health, WatSan and all other service provider agencies be required to display public information on the services they are supposed to



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Jetty at Dam Bundar

deliver, including the names and attendance of staff members, e.g., teachers and doctors, as well as monthly revenues and expenditures.

- District, tehsil and union council plans and budgets, allocations for service providers, sector-wise expenditure, and performance reports should be published and disseminated. Local media can help in presenting and discussing service delivery-related issues with the help of the provincial government.
- Service delivery policies, standards, avenues for complaint, budget allocations, and comparative service delivery performance in districts should be publicized through media such as television, radio, and the national and regional press.
- While a local radio station and local newspapers would be the ideal mediums to disseminate information, these do not exist in Lasbela or in any other district. It is crucial to develop local channels for dissemination that are independent of the establishment; otherwise public messages may be in danger of distortion by local

bureaucracy and politicians. It is often the local media that ensures accountability at the local level, as has happened in many countries.

- The information that is disseminated must be free of party politics to establish its credibility. Bulletins and other materials that relay information should have a standard design and logo for visibility and recognition.

**Creating Demand** is another way. This is to create a direct link between user fees, local taxation and service delivery as under:

- Retaining user fees and spending them locally. User fees collected should be retained and spent by their respective service providers, who should be guided by User Committees. This would ensure that public money spent on services contributes to the services that the public receives.
- Providing information on how user fees and local revenues are spent. Service providers and local governments should be required to publish statements on how the user fees or local revenues are spent. The

public needs to be aware of the role of both locally raised revenues and user fees, and be encouraged to ask how its taxes or user fees are being spent.

- Demand for services can be generated by subsidizing many of the costs of accessing these services directly.

### Key Issues

- Lack of reliable water and sanitation data is a major hurdle in service delivery. The relevant staff in the service departments is unaware even of the presence and operation of most of the water and sanitation schemes in their areas.
- Underlying the problem of poor information management is the weak demand for information, because implementers and managers have limited capacity and incentive to use this information. The first is due to limited managerial skills and the second to the fact that managers have little real autonomy to make decisions or incentive to perform, and therefore, to use information effectively.

- Public sector agencies do not provide information directly and pro-actively to the people regarding their policies, plans, programmes, and projects, nor do they convey the cooperation required from the public. Participation and contribution of stakeholders and people in programmes and projects suffers due to a lack of sharing of information. These factors also lead to a lack of transparency.

- Data produced for public consumption is not readily available. Most of the information is in English, which automatically excludes the masses and therefore their critical participation.
- The district lacks web-based integrated information management (for all sectors or for any individual sector), making the use of available information for planning, management and monitoring impossible, especially for an integrated project or programme.
- There is low use of computers and very little use of GIS technology at the district level.



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Mobile tower at Zero Point coastal highway, Uthal

- There is a tendency to withhold information and not share it, either horizontally within organizations or with other stakeholders;
- Data and information is not adequately used in planning and implementation.
- The credibility of government agencies regarding accuracy of information is questionable. Rumours take place in the absence of timely and accurate information from government agencies.

## Measures

1. The key areas of information for dissemination will be identified, and efficient systems for information dissemination will be developed and operated.
2. Public sector agencies and other stakeholders will promote effective communication in the district through:
  - Electronic and Print media, especially radio and Urdu newspapers
  - Bulletins pasted at conspicuous places in government offices, public sector institutions such as schools, colleges and hospitals and other healthcare facilities, bus stands, courts, post offices, markets etc.
  - Bulletin distribution with newspapers
  - Local announcements by drum beaters
  - Development and maintenance of an official common district website for all government agencies working in or at the district level, and linking with websites of relevant government departments, NGOs, CSOs, and private sector organizations such as the Lasbela Chamber of Commerce and Industry
  - Information booths at social gatherings and cultural events
3. The information gap between the government and the masses will be bridged and the masses will be continuously updated. The District Administration will distribute hand-outs and district level departments will develop and disseminate targeted materials and information through periodic bulletins.
4. Coverage and access to the radio will be extended, especially in remote rural areas. Relevant Lasi, Sindhi and Urdu programmes from radio and television will be presented, which will provide information and raise awareness of grazers, farmers and others.
5. An official website for all government agencies in the district will be developed and maintained.
6. Issues such as the likely crisis of groundwater depletion will be addressed; active participation in the 2011 Population Census will be promoted; participation in the design and planning of mega and large projects will be sought; human resources will be developed and employment opportunities explored; SMEs will be planned and developed; environmental issues will be addressed; technology and other innovations will be promoted; heritage will be conserved; and campaigning against societal problems will take place through raising awareness and dissemination of information.
7. The Integrated Development Vision (IDDV) of Lasbela District will be translated into Urdu and copies will be distributed to key stakeholders and implementing agencies including all educational institutions, public offices, NGOs, provincial departments and relevant federal ministries and agencies.
8. All topographical sheets and other district maps and thematic data linked to maps to users will be digitized, printed and disseminated. This will help improve efficiency and quality of decision-making as well as the performance of government agencies and partner organizations.
9. A comprehensive land use map of the district will be developed from appropriate satellite images.
10. The information needs of all target groups and stakeholders will be fulfilled.

11. The use of information technology will be promoted.
12. E-mail service in public sector agencies and in towns and villages where electricity and telephone facilities are available will be promoted, introduced or expanded as required.
13. Information centres will be set-up at the district, tehsil and union council levels.
14. A GIS-based database and website-based information system will be developed and operated at the district level for dissemination of various kinds of information.
15. The use of newspapers as a means of communicating information, made interesting with pictorials, graphics, cartoons, etc. will be promoted.
16. Television coverage will be extended televisions will be supplied in common meeting places for communities in remote rural areas (separately for men and women) at subsidised rates or even free, for communal use.
17. Community organization-managed local broadcasting units at tehsil and district levels will be promoted.

# 12. Implementation

The real value of this document is in the implementation of priority programmes and projects by all implementing agencies and stakeholders for their part in the flexible District Action Plan.

## 12.1 Priority Programmes and Projects

The priority programmes and projects envisioned in the IDDV are:

1. Improving coverage and quality of education, health, WatSan, electricity, gas and other services.
2. Surface water development by developing mega and small storage and recharge dams respectively including early completion of Windar and Hingol Dams, with environmental safeguards including the environmental flow to estuaries and mangroves; and controlling depletion of ground water by shifting subsidy on agricultural tube wells to technology based efficient irrigation systems (drip, bubbler, sprinkler), land levelling, water



- management including insulated channels or PVC pipes; fruits and crops diversification to include the low delta demand; and controlling water pollution from municipal discharge and industrial effluents.
3. Expanding, modernizing and commercializing the agriculture sector including the use of efficient irrigation systems; improved inputs, i.e., seeds, fruit planting stock, manure and natural and chemical fertilizers, agricultural machinery and equipment, integrated pest management (IPM), appropriate agricultural pre- and post-harvesting practices; expanding floriculture; improving coordination between research and extension and outreach of the latter; improving marketing information and facilities (early completion and operation of Agriculture Market at Uthal), and facilitating access to credit.
  4. Modernizing and commercializing the livestock sector by developing dairy farms; improving breeds, health and feed of livestock; procurement of and cross breeding with high yielding milk, and beef and meat breeds (using proven sires and artificial insemination); expansion of area under fodder crops, and development of rangelands and managing sustainable grazing; and improving coverage of vaccination, de-worming and treatment of livestock; and partnership between public and private sectors and communities with guaranteed equity in benefit sharing with communities.
  5. Further developing poultry farming to its optimum potential.
  6. Conserving and sustainably utilizing the coastal fisheries and mangroves for subsistence and livelihood of coastal communities by establishing best practices.
  7. Further expanding the industrial base with greater focus on SMEs and improving the environmental friendliness of industries at hub, Windar, Zero Point, etc.
  8. Promoting natural resources (e.g. fruits, vegetables, livestock, poultry and fisheries) based small and medium enterprises.
  9. Further exploration and expanding exploitation and value addition of minerals, and asking for strengthening of the Balochistan Directorate General of Minerals and Mining as a first step.
  10. Realizing the huge potential of nature and culture tourism and ecotourism.
  11. Developing the skills and aptitude of the labour force by launching intensive human resource development initiatives for promoting SMEs and livelihoods.
  12. Protecting and rehabilitating natural forests and raising and maintaining forest plantations of multipurpose and low delta demanding trees on marginal lands or as agro-forestry.
  13. Conserving and sustainably using of wildlife and protected areas on scientific lines through management planning and implementation with community participation.
  14. Environmental protection including controlling air, water, noise, soil, land, coast and sea pollution; safe disposal of sewerage and industrial effluents, solid waste, hospital waste and industrial waste.
  15. Master planning and up-gradation of all existing large settlements and proactive planning of new medium sized settlements, especially near the industrial and trading estates, and centres of commerce and trade.
  16. The five priority sectors in the district in accordance with trends in allocation of funds through PSDP during three years (2008-2011) in descending order are Roads, Education, Irrigation, Drinking Water and Power. Reprioritisation of investments is required for boosting health, WatSan, agriculture, livestock and rangelands, fisheries, wildlife and protected areas, tourism and watershed and forestry sectors.
  17. Developing natural resource sectors, especially agriculture, livestock and poultry, coastal fisheries, mineral and mining, wildlife and protected areas, tourism, health, WatSan, and human resource development for SMEs and livelihoods.

18. Improving governance by strengthening institutions, enhancing capacities of individuals, turning political interference into positive involvement, improving intra-agency and inter-agency coordination and horizontal information flow, especially to masses, establishing a one-window effective complaints and grievance mechanism in the office of the Deputy Commissioner/DCO, establishing a comprehensive data base at the district level with nodes to all district offices, displaying transparency, introducing an effective monitoring and accountability system, ensuring objectivity and results, curbing corruption, malpractices and delays, promoting participatory and consultative decision making, planning and management mechanisms, and providing an enabling environment for the public sector agencies, the private sector, NGOS, academia and the media.
19. Seizing the opportunity of development of Lasbela District as a twin satellite of Karachi, as has happened in the case of industry, and proactively planning its growth and development accordingly.

fisheries, water, transport, business, tourism)

- Media (print and electronic)
- Academia (education and research organizations)

### 12.2.2 Indirect Stakeholders

- Transporters from outside the district
- Fruit and vegetable-related SME investors from outside the district
- Livestock traders
- Other traders from outside the district

### Public Sector

Governance at the district, tehsil and local levels has suffered due to a half-heartedly implemented devolution plan. In January 2010 the local government system was reversed to provincial management but the shape of the future system has not been finalised. There is also the issue of quantity versus quality of staff due to due to political expediency for providing employment. The dependence and expectation of the workforce on white-collar jobs adds to the problem.

A complete overhaul of the mandates, priorities, structures, systems and procedures of all public sector agencies at the district level is required through SWOT analyses and a Management and Programme Review. This will improve their internal structure, enabling an improved environment, efficiency and effectiveness. It is also important that participatory planning and management be made an integral part of the future system.

### Private Sector

The private sector is very prominent in district Lasbela because of the industrial characteristics in south-eastern Lasbela including Hub Industrial & Trading Estate (HITE), Windar Industrial & Trading Estate, the Bela-Uthal Industrial & Trading Estate, Gadani Shipping Industries, Marble City, and the mining sector.

However, management, pollution, workers' safety and occupational health are weak except for multinational industrial enterprises.

## 12.2 Institutional Development

### 12.2.1 Key Stakeholders

- District Administration and public sector agencies at the district, tehsil and union council levels
- Tehsil level municipal bodies
- Union council local bodies
- Provincial Government
- Federal Government
- WAPDA
- National Highway Authority
- Civil Society Organisations
- Communities
- Private sector (industry, mining, agriculture, livestock, poultry,

The private sector is also involved in commercial agriculture e.g. orchards, coastal fisheries, poultry farming, livestock, commerce and trade, transport and development of infrastructure.

Although interaction with the government appears well defined, it is less than ideal. The interaction of the private sector with non-government organizations is minimal. The profit motive prevails and there is little or no concept of corporate social responsibility (CSR). The apathy of the private sector regarding the impact of pollution, in particular effluents impacting the residents of Hub Town and the water bodies in the area, is of great concern to the people and environmentalists.

Generally, the private sector is blamed for not employing the local population from Balochistan; however, the sector has identified problems with local labour being unskilled and inefficient. They prefer to employ skilled labour from other regions to ensure that the industry continues to function.

The solution lies in creating a mechanism to train local people in the skills needed by the private sector. The process should start with a training needs identification, establishing appropriate vocational training centres, and attracting and motivating the potential labour force to such trainings.

Some progress has been made and a small-scale collaborative mechanism between the Lasbela Chamber of Commerce and HITE is operational.

### **Civil Society Organizations (CSOs)**

Many civil society organizations or NGOs (international, national, provincial and CBOs) are active in Lasbela District including IUCN, WWF-P, SPO, and NRSP. Their role can be enhanced greatly in the district but they would need support in capacity building and funding for interventions.

### **Community Based Organizations (CBOs)**

The useful role of CBOs is a neglected area so far. The networks of NRSP and SPO in Lasbela District are comparatively better.

Devolution incorporated the Citizens' Community Boards (CCBs). There are also

some CSO alliances, which provide membership to CBOs. It is difficult for the umbrella or apex CSOs to reach all target groups and areas. It would help the CSOs, NGOs as well as government agencies and communities if additional CBOs or CCBs were established to cover the remaining areas and generate the resources for their functions and interventions.

### **Academia**

Despite a rich cultural heritage, the strengthening of academic, educational and research institutions has remained weak. The contribution of academia is limited mainly due to lack of coordination amongst the various educational and research institutions.

The establishment of the University of Lasbela Uthal is however a great accomplishment and focuses on marine sciences.

Research, especially in natural resources (agriculture, fisheries, livestock & rangelands, coastal resources, mining) is the mandate of the provincial government. WAPDA, IWRS, Geological Survey of Pakistan (GSP), Pakistan Agriculture Research Council (PARC)/National Agriculture Research Centre (NARC), Cotton Research Institute, NHI, are some of the federal organizations and institutions that are engaged in research for their own needs.

### **Media**

The growth of media in the country especially the electronic media has also catalysed the growth and development of media persons in the district although local patriarchal customs and traditions hinder women from performing an active role in the media. While the efficiency and speed of delivery of information by media has increased tremendously, its accuracy, freedom from biases and comprehensiveness in reporting are not at the desired level. There is a need to build capacity, especially in investigative journalism, of people working in media.

### **Capacity Building**

Capacity building is at two levels, (1) institutional strengthening and (2) development of the competencies of the individual workers. Institutional capacity building aimed at understanding and implementing the devolved system to take



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Poster competition organised on World Environment Day at the Lasbela University

forward the development process was undertaken but was only partly successful.

Capacity building was emphasised during the early days of Devolution through the Devolution Support Programmes funded by the multilateral and bilateral donor agencies and also included capacity building of the elected representatives.

Information dissemination through publications is difficult due to the low level of literacy in the district. Civil society organisations can help in dissemination of information and public education through their programmes and activities but they will need orientation, capacity building and finances. The media can also play a useful role in this regard.

A social capital development programme will be established for the work force to acquire skills, especially for jobs in construction material making units, mining, tourism, agricultural engineering, commercial agriculture and livestock, poultry farming and, agricultural engineering.

### **Enhancing Competencies of staff**

Attendance, mind-set and attitudes, understanding of the job and responsibilities,

competency to do the assigned task, an enabling environment and motivation provided by the government agency all impact performance. However, these are not considered important enough to develop capacity building programmes.

The major thrust of the trainings in Lasbela will be on the development of organisational capabilities for elected representatives.

Training of all government department staff will be implemented through a crash-training programme for which a training-needs assessment will be conducted to determine the scope and size of the training programme. The provincial government will take the lead in such an initiative for the whole province to prepare and deliver an effective training programme at the district level.

### **Building Social Capital**

Lasbela district is endowed with natural and human resources and is also the most industrially developed. The district has the scope to develop water, tourism, agribusinesses, trade and commerce, inland, coastal and marine fisheries as well as livestock. A great diversity of skills is required for supporting the industry and mining locally and harnessing its full potential.

However, demand and supply of labour force are mismatched due to lack of required skills in the local labour force. As a result, the industries in Hub, Windar, Gadani and Marble City have employed a significant number of workers from outside the district and the province.

The social indicators in the district are low and poverty prevails in the rural areas. Although agriculture is a traditional source of livelihood the local labour force is not adequately engaged in it due to lack of skills. Poultry and the expanded mining sector are the new endeavours of the private sector in the district but there has been little attention paid to developing the labour force for the network.

Coastal fishery is still very traditional and has not benefitted from contemporary developments, mainly due to the status quo in fishing skills and lack of gear. The district has the potential to establish and expand food processing (fruits, vegetables and poultry and fish products), tourism, mining, etc., but this is impossible given the currently available human resources and skills. The commercial, industrial and mining businesses in Lasbela require professional staff qualified in business finance and accounts, in addition to technical areas. So far industrial and commercial establishments have been obliged to hire

labour from outside the district as the local people are unskilled.

Lasbela is at the threshold of major economic changes that will require a large and skilled work force. Concerted efforts will be taken to invest in the development of human capital to tap employment opportunities arising in various sectors. Technical, professional and vocational training facilities will be created and expanded to meet the demand.

Vocational and technical training centres either do not exist or rarely provide training that could help in finding jobs. They are also ineffective mainly due to lack of up-gradation to match the market demand for skills and lack of qualified instructors, training materials and equipment.

No study has been made of the existing and emerging labour market in Lasbela District. Nor is there any commercial, financial and business education institution in Lasbela. These institutions will be set up on a fast track to provide professional and technical education and training to the people of Lasbela to allow them to compete for and access the new and relatively better-paid jobs.

Fishing is a complex subject and there are wide variations among fishermen, fishing



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*Avicennia marina* mangrove forest at Wad Bundar, Hingol National Park

crafts and the harvest they seek. Fish and fish product processing takes place outside the district i.e. at Karachi.

According to the Fisheries Department, fishermen are not aware of the modern techniques of fishing. The need for a Fishermen's training institute has in the past been highlighted by various fisheries development projects since there are no training facilities for fishermen in the district.

Any such initiative requires a needs assessment to identify the various types of fishermen, mole agents and fish processors and the areas that need training.

Post-harvest losses in fisheries are considered an important problem that affects the income of fishermen. Another cause is the techniques in fish handling practices and post-harvest processing until sale of harvest, which varies with the type of fish.

A vast majority of the fishermen are neither literate nor have time to attend the training because of their rigorous working hours and gruelling work conditions. They perceive time spent on training to be unproductive, since it does not immediately bring in revenue for them. Short training programmes might be one way of encouraging them to come.

Arranging short training programmes accordingly will be one solution. Mole agents will also be trained to make them aware of WTO regulations and export regulations and requirements.

## 12.3 Action Planning

### Action Plan

The District Administration and district heads of departments will work closely to develop their five-year organizational Action Plans according to their capacities and expected financial resources. These will be consolidated into a cohesive District Action Plan.

Monitoring and impact assessment of sustainability of the district will be an essential part of the Action Plan.

The District Administration and district heads of departments will push the provisions of the Plan into the planning and resource generation process, working closely with the

provincial and federal governments, donors and NGOs and would also make use of the various federal and provincial programmes and projects for implementation of the IDDV.

### Action Plan Strategy

The implementation strategy is short-term, medium-term and long-term as explained below:

**Short Term:** A five-yearly flexible First IDDV Action Plan, coinciding with the Five Year Plan 2010-2015 of the government, will be developed to implement the short-term measures to suit the capacities and financial resources available. The implementation of the Action Plan will be monitored annually to identify and address major constraints in implementation. Its mid-term impact on sustainability of the district will be assessed in the third year of implementation to see its effectiveness and assess for course correction, if needed. In that case, the relevant parts of the plan will be revised. However, revision is not necessary in the parts of the Action Plan, which have not been implemented as yet.

**Medium Term:** Implementation of the medium-term measures in the various sectors along with the un-implemented parts of the First Plan will be included in the five-yearly flexible Second IDDV Action Plan for 2015-2020. The monitoring and assessment process mentioned above will continue under the guidance of the IDDV Steering Committee.

**Long Term:** The throw forward from the First and Second Plans and the long-term measures will be included in the five-yearly flexible Third IDDV Action Plan for 2020-2025. The monitoring and assessment process will continue as mentioned above.

The IDDV may be revised in 2025, in case the situation, issues and options to address the issues have changed significantly and additional opportunities have been created by that time.

Funding will remain the main constraint in the implementation of the IDDV. While the district generates significant revenue, it needs a major share of the revenue for maintenance alone, apart from a budget for development, which helps to generate additional assets, capacities and revenue. Since the district has great potential in this regard, it is important that it

should get adequate allocations from the revenue budget as well as a sufficient share of the GST. This will help avoid degeneration of its capacity and generate enough revenue, as well as an adequate development budget, to enable it to maximize its development potential.

A balance between society, community, and the economy, and nature and the environment, is key to sustainable development. The present lack of sustainability in Lasbela is due to ad hoc and unplanned economic growth that is occurring without any assessment of its impact on society, nature and the environment. In addition, there is no balance between population and resources and depletion of natural resources due to unsustainable use.

Lasbela District needs a balanced growth model, despite its resources and capacity constraints. Such a model also suits the various public sector agencies whose contribution will be needed to prioritize and share financial resources. For example, the major investments in the public sector have been on roads and other infrastructure, with very low or no investment left over for natural resources and the social sector.

Opportunities of scale also exist including corporate farming, which uses technology and reduces production; transportation and marketing costs and can involve the community. Cooperative farming or shareholding will be encouraged in corporate farming programmes. The federal and provincial governments will provide policy and legal frameworks and incentives to facilitate the environment such as the subsidized flat rate tariff on agricultural tube wells, a joint policy decision by the federal and provincial governments and WAPDA with short-term benefit to agriculturists (although it had long-term repercussions on the ground water).

Devolution involved decentralization of responsibility for provincial governments, which should have led to revenue generation; however, Lasbela District's significant potential for this was not realised. Lasbela, as well as other districts, were not independent administratively or economically. The formula of the Provincial Finance Commission (PFC) for distribution of finances among districts did not take into consideration the criteria of revenue generation or population. The position

of Lasbela District is analogous to Karachi District, where revenue generation is one of the criteria.

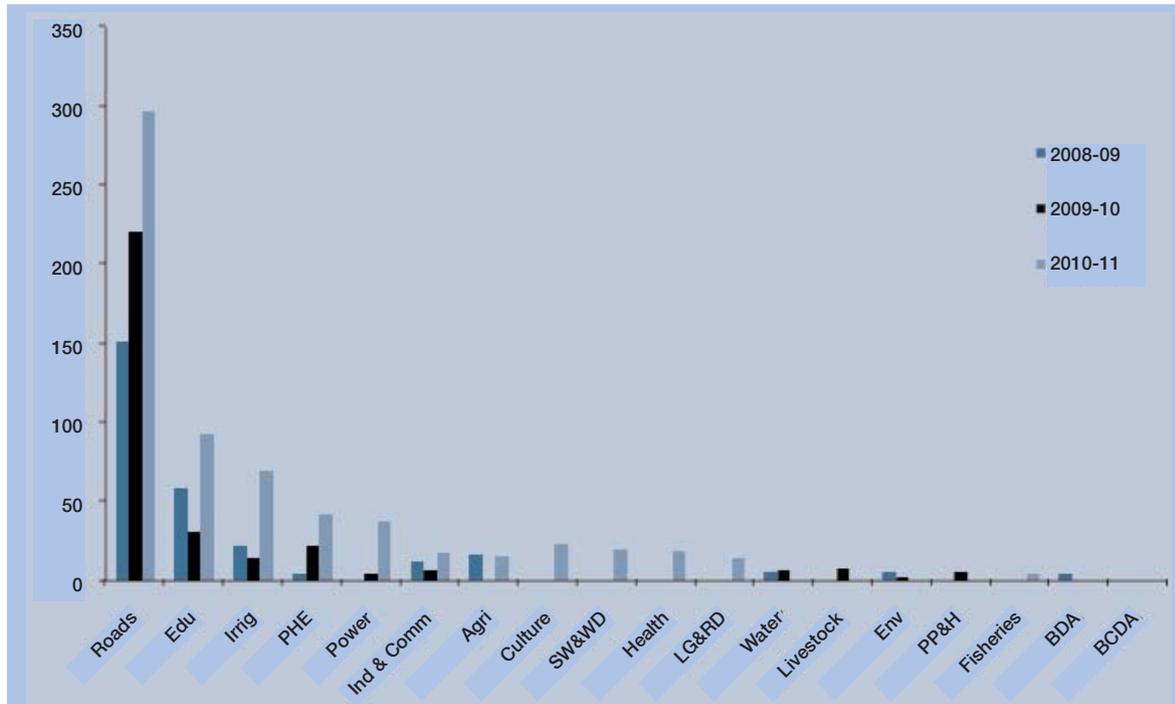
A complete overhaul of the mandates, priorities, structures, systems and procedures of all public sector agencies at the district level will be undertaken, informed by their SWOT analysis, and Management and Programme Reviews.

In addition:

- Incentive for corruption will be reduced significantly with higher salaries, fringe benefits, and better conditions of employment.
- Information sharing regarding public sector programmes, projects, roles and responsibilities of public sector agencies and their specific staff, as well as procedures, establishment of a one-window operation and complaint redressing systems will help in improving the transparency and accountability.
- Opening the close departmental committees and forums to the representatives of stakeholders will also be helpful in this regard.
- Senior officers will be encouraged and supported to be good role models in terms of efficiency, conduct, transparency and accountability.
- Negative political interference will be discouraged, which negates merit, efficiency and good conduct of staff, rather encourages favouritism and nepotism, and supports corruption.

## Dissemination of the IDDV and the Action Planning Process

Copies of the IDDV will be provided to all implementing agencies and stakeholders to enable them to develop their Action Plans and milestones, keeping in view their capacities and availability of financial resources. IUCN will provide assistance with action planning for the relevant departments. The Action Plans of the individual departments and agencies will be consolidated into a District Action Plan.

**Figure 21: Actual PSDP Allocation<sup>61</sup> (Original) for Lasbela District (2008-09)**

Source: Public Sector Development Programmes

## 12.4 Institutional Arrangements

The district administration will involve all stakeholders in implementation of the IDDV through an IDDV-Steering Committee (IDDV-SC), which will oversee and guide the implementation. The IDDV-SC will be headed by the DCO and will comprise of representatives from key public sector agencies, politicians, religious leaders, tribal elders, and the private sector including the *Zamindar* Action Committee, industries, mining, fisheries, livestock, poultry, tourism, transport, LCCI&E, civil society organizations, academia and the media. The Steering Committee will meet every quarter at the beginning and every six months later on, or on an as-needed basis. The SC will nominate the Secretary of the Committee for coordination, who will also be the focal person for implementation.

The SC will form a Management Committee to address implementation issues and ensure coordination, monitoring and feedback. This Committee will be headed by an official nominated by the SC and will comprise of key implementing agencies, and will report back to the SC.

These committees will also develop their Terms of Reference (ToRs) and Procedures of Business for systematic working.

The district administration will seek the assistance of credible and interested international organizations such as IUCN to help facilitate implementation of the IDDV including its action planning of IDDV and promotion of best practises in governance, and planning and management of natural resources.

## 12.5 Investment Trends

An overview of last three fiscal years' (2008, 2009 and 2010) actual PSDP fund allocation in different sectors for Lasbela District is given in Figure 18.

A comparative analysis of actual total PSDP fund allocation (for years 2008, 2009 and 2010) in different sectors for Lasbela District is given in Figure 19.

A comparison of five higher actual investments in Lasbela District for the year 2010-2011 is given in Figure 20.

61 Allocation in Million Rs.

A comparison of low actual investments in Lasbela District for the year 2010-2011 is given in Figure 21.

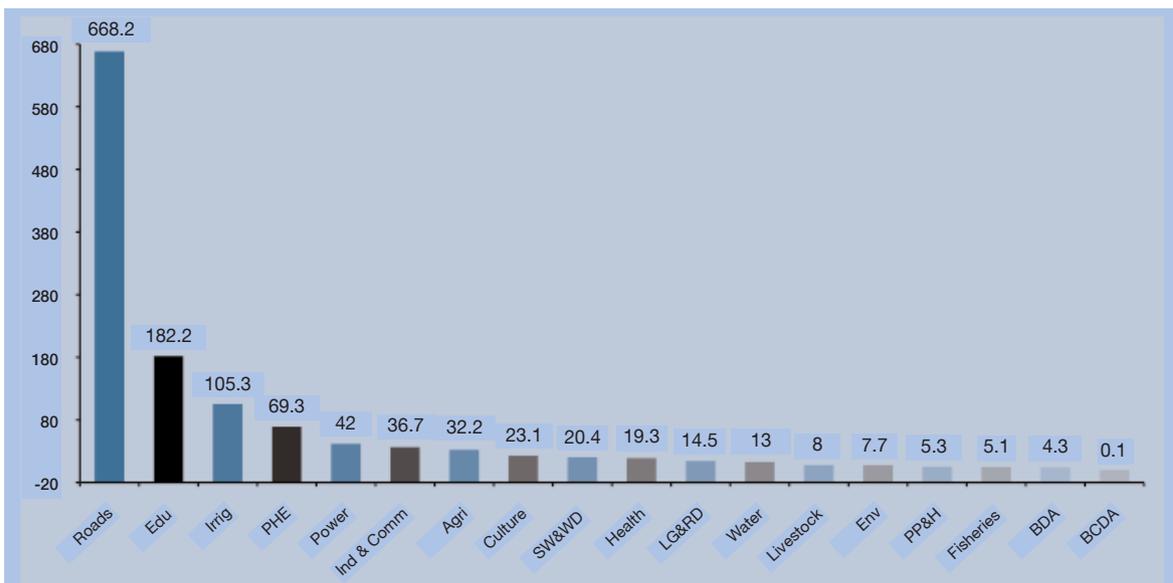
4082.411 million (2008-09), Rs. 3910.098 million (2009-10) and Rs. 5872.753 million (2010-11).

A comparison of actual provincial PSDP fund allocation in different sectors for the years 2008-09, 2009-10 and 2010-11 is given in Figure 22.

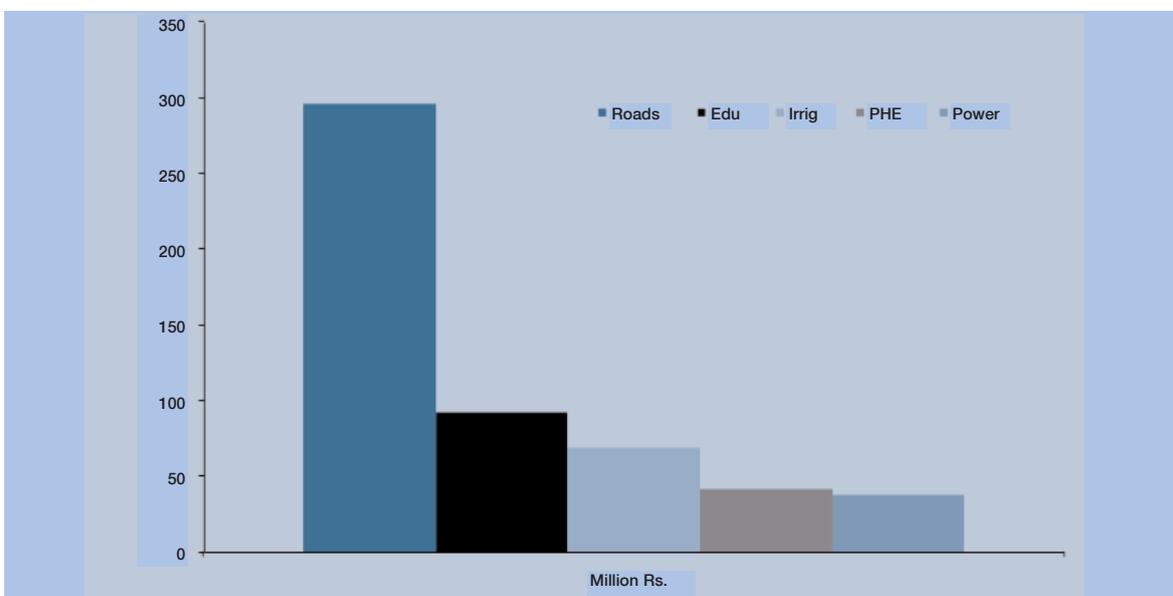
Provincial allocation is worth Rs. 510.984 million for completion of all incomplete schemes in the province for 2010-11. The allocation figures for the incomplete schemes of Lasbela District are not available on P&D website.

The above allocations do not include allocations for other schemes worth Rs.

**Figure 22: Combined Actual PSDP (Original) Allocation<sup>62</sup> (2008-09 and 2010) for Lasbela District**

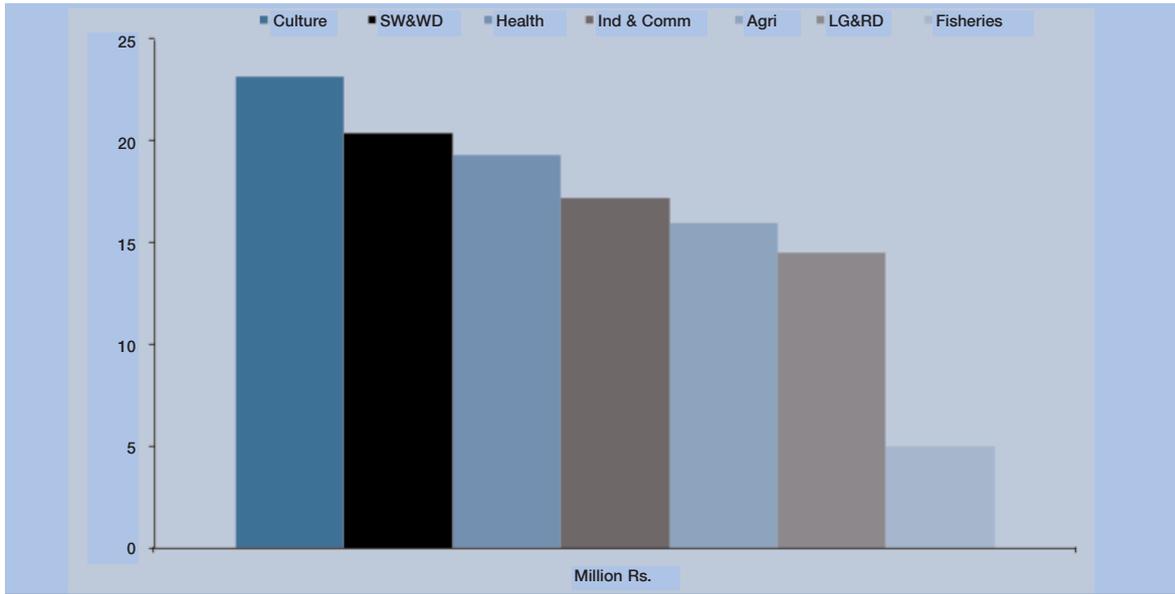


**Figure 23: Comparison of Five Higher Investments in Lasbela District 2010-11**



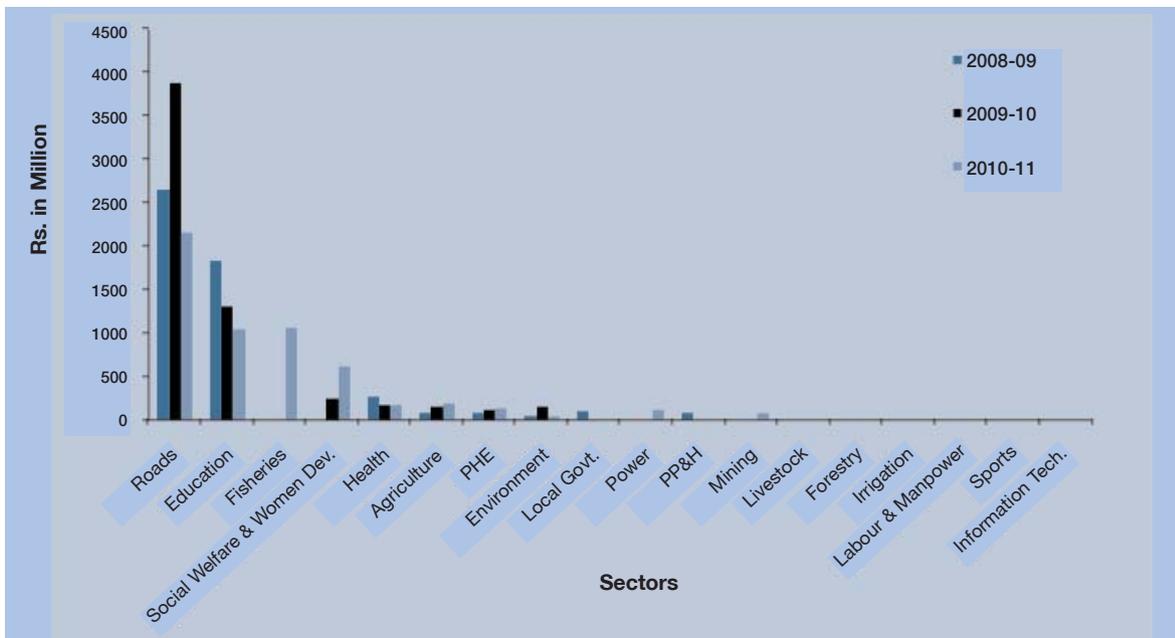
Source: Balochistan PSDP – 2010-11 (Original)

**Figure 24: Comparison of Low Investments in Lasbela District 2010-11**



Source: Balochistan PSDP – 2010-11 (Original)

**Figure 25: Sectoral PSDP Allocation<sup>63</sup> (2008-09 and 2010-11) for Balochistan**



## 12.6 Resource Mobilization and Efficient Use

The implementation of many elements of the IDDV will not require significant financial resources. For example, improvement in governance requires a change in attitude and behaviour, efficiency, enhancing information, transparency and accountability, and

improving policies, systems and procedures. Prudent use of funds and reprioritization of investment can result in freeing up significant funds. The District Administration will approach the provincial and federal governments for funds as outlined within the framework of the provincial Public Sector Development Programme (PSDP) and the federal Annual Development Programme, as well as for other funds.

63 Allocation in Million Rs.

Donors are expected to support the IDDV programmes and projects that are compatible with their priorities.

Financial resources will be tapped from the following sources:

- District specific PSDP
- Provincial and federal projects
- Donor funding (grants and soft loans) directly or through the government system or CSOs
- Raising additional revenues at the district level through taxes, levies, rents and user charges in consultation with the provincial government
- The efficiency of financial resources will be enhanced using the following approach:
  - Right prioritisation in allocations in PSDP
  - Prudent and efficient use of funds and stringent control on spending

- Balancing the budget between salary of staff and activities
- Bringing to light misappropriation of funds, and addressing this swiftly and appropriately.

## 12.7 Monitoring & Evaluation

The various implementing agencies will develop, in consultation with stakeholders, their IDDV Implementation Plans with milestones as well as indicators of sustainability. The agencies will be supported by IUCN in this exercise. A mechanism of annual internal monitoring of implementation and an external review of impacts regarding sustainability (3-yearly) will be established and implemented. The lessons learned will be identified, documented and disseminated for replication and scaling up.

The assessment of sustainability, based on the selected indicators, will be reported to the Steering Committee for further guidance or adjustment in their Action Plans, milestones or sustainability indicators.

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## Annex 1: Un Millennium Development Goals

S. No.	Goal	Target
1	Eradicate extreme poverty and hunger	Halve, between 1990 and 2015, the proportion of people whose income is less than \$1 a day
		Achieve full and productive employment and decent work for all, including women and young people
		Halve, between 1990 and 2015, the proportion of people who suffer from hunger
2	Achieve universal primary education	Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling
3	Promote gender equality and empower women	Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015
4	Reduce child mortality	Reduce by two thirds, between 1990 and 2015, the under-five mortality rate
5	Improve maternal health	Reduce by three quarters the maternal mortality ratio
		Achieve universal access to reproductive health
6	Combat HIV/AIDS, malaria and other diseases	Have halted by 2015 and begun to reverse the spread of HIV/AIDS
		Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it
		Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases
7	Ensure environmental sustainability	Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources
		Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss
		Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation
		By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers
8	Develop a global partnership for development	Address the special needs of least developed countries, landlocked countries and small island developing states
		Develop further an open, rule-based, predictable, non-discriminatory trading and financial system
		Deal comprehensively with developing countries' debt
		In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries
		In cooperation with the private sector, make available benefits of new technologies, especially information and communications

Source: UN (<http://www.un.org/millenniumgoals/index.shtml>).

