



# National Position Paper on Horizon 2020 Societal Challenges

PAKISTAN

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### **Important Note**

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## 1. Executive Summary

### 1.1. Background

This paper presents the situation analysis of societal challenges in Pakistan, highlighted in Horizon 2020, under the EU's FP7 CASCADE Project towards identifying the required improvement in national policies and highlighting the research priorities in the country.

### 1.2. Methodology

The research carried out herein involved evaluation of the national policies in presence of the ground realities towards identifying policy's gaps and future research priorities. The methodology adopted included content analysis approach on relevant policies, review of published and grey literature that helped in developing thematic questionnaires for survey exercises. It is followed by 127 semi-structured interviews and 2 focus group discussions in each area of societal challenges with key experts (policy makers, enforcer and end users) from within the government, academia, research and development institutions, NGOs & INGOs. The number of participants in FGD 1 was 8 and the number of participants in FGD 2 was 12.

### 1.3. National priorities

#### Health, demographic change and wellbeing

- Develop an integrated health policy, improve health governance and assign authority to health professionals in strengthening four tiers of health care provision system.
- Increase investment in health sector, establish public-private partnership, and develop physical & technological infrastructure of health delivery system.
- Raising awareness on healthcare preventive programmes through community-based (including religious and community leaders) education and trainings and using print & electronic media.
- State-of-the-art surveillance systems should be in placed to detect outbreaks of diseases and tackle these early in time.

#### Food security, sustainable agricultures, marine and maritime research and the bio-based economy

- National policy execution is essential that requires increasing budget, improving agriculture & livestock governance, developing human resources and ensuring services delivery at gross root level.
- Water conservation and management and exploitation of water resources requires special attention.
- Waste management and treatment to improve quality of surface and subsurface water are key areas to address water pollution, ensure good agriculture processes and better manufacturing practices.
- Natural resources management requires attention but lacks governance capacity of the relevant departments and need increasing funding.
- Biotechnology research for improved productivity and exploitation of sea-based resources are the areas of research to boost economy.

#### Clean and efficient energy

- Exploitation of indigenous resources and foreign investments are needed to develop power sector and oil & gas sector to overcome the energy crisis in Pakistan<sup>1</sup>.
- The country should benefit from the vast potential for Hydel Power, launching large hydel projects and improving hydel:thermal mix to 70:30.

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<sup>1</sup>Mr. Syed ZainUllah Shah, Chief Planning Officer, Energy & Power Department, Government of KP, Pakistan.



- Investment and research are required to exploit the vast potential of coal reserves in Pakistan that has a potential of 100,000 MW.
- Alternate source of energy potential like wind, solar and biomass, requires exploitation for both small and large scale usages.
- Energy conservation and management requires attention including practices to reduce energy losses in transmission & distribution lines and reduce household & plants energy consumption.

#### **Smart, green and integrated transport**

- The Road transport mode requires establishing and developing indigenous engineering tools for the design of roads, including road factor in urban planning and introducing public transport.
- Traffic management framework should include educating people about the transport use and traffic safety and enforcing traffic regulations stringently.
- Vehicle emission testing stations should be installed and fuel-efficient and environment friendly vehicles should be introduced to mitigate environmental problems.
- There is a dire need to restore the railway transport mode, which is out dated presently, through increased investment and involving private sector.
- Pakistan International Airlines requires increased investment to enhance the services quality and revive international competitiveness.

#### **Climate action, resource efficiency and raw materials**

- Adopting climate change requires increased investment, introducing cost-effective and innovative alternatives.
- Improving capacity of governing institutions for regular monitoring of land use, put in place hazards (floods, land sliding) early warning and mitigation systems.
- Introduce climate extremity resistive crops and farming techniques.
- Mitigating carbon emission through promoting hydropower and renewable energy alternatives.
- Reducing air and water pollution through ethical and managed agricultural practices and safe industrial waste disposal and re-cycling.

#### **A changing world: inclusive, innovative and reflective societies**

- Improving governance system in the country
- Developing and promoting education and research environment in Pakistan
- Developing sports and tourism opportunities
- Conservation the cultural and religious heritage

#### **Secure societies: protecting freedom and security of the country and its citizens**

- Priorities included ensuring individual and community's security i.e. basic needs, rights and freedom and environmental protection in the country.
- Terrorism and crimes control requires civil registration of all Pakistani citizens, establishing crime control centres, shifting towards E-governance and secure documents record.
- The country should ensure minimum essential opportunities to ensure economic and personal security.
- Gender equality, women empowerment, legal protection through panel to ensure women and children security
- Developing and strengthening disaster risk management framework to secure resilient societies and ensure environmental security.

#### 1.4. Opportunities of mutual interest for collaboration with the EU

- Priority areas for mutual collaboration with the EU in the health sector included devising integrated health policy, developing physical and technological infrastructure for health care services and delivery, designing and practicing state-of-the-art surveillance systems to detect outbreaks of diseases treat early in time (e.g. cango virus, dengue fever, bird flue), designing cost-effective and efficient vaccines for prevention of diseases (e.g. Hepatitis, TB, malaria, polio, rabies, measles).
- In the food, agricultural & livestock sector priorities included research on water conservation and management and exploitation of water resources, waste management and treatment to improve quality of surface and subsurface water, introduce good agriculture processes and better manufacturing practices, natural resources exploitation and management, biotechnology research for improving productivity and exploitation of sea-based resources.
- In the energy sector priorities included research on Hydel power energy production, oil & gas exploration, developing coal clean technologies and exploitation of coal reserves for energy production, alternate sources of energy require exploitation (e.g. winds, solar and biomass), introducing reduced energy consumption physical infrastructures and technologies.
- In the transport sector priorities included developing region-specific engineering tools for the design of roads, fabrication of vehicle emission testing tools, introducing fuel-efficient and environment friendly vehicles, railway and airway transport modes requires major physical infrastructure and technological restoration.
- In the climate change and environment sector priorities included introducing cost-effective and innovative climate change adaptation methodologies, developing hazard early warning and mitigation systems, climate resistive crops and efficient forming techniques, industrial waste disposal and recycling.
- In the innovative society sector priorities include developing and promoting the education and research environment, developing governance system, developing technological sector, developing sports and tourism sectors, conservation of the cultural and religious heritage.
- In the society freedom and society sector priorities included devising policies that ensure individual and community's security, introducing advanced and smart technologies for civil registration, establishing and designing crime control centres, cyber security framework and introducing E-governance system.

## 2. Introduction

### 2.1. The Importance of Situation Analysis of Societal Challenges in Pakistan

Pakistan is a developing country but for more than a decade it has been facing numerous challenges stemming from the global economic crisis, political instability, conflict and insecurity, and disasters associated to natural hazards restraining the economic growth and social progress that placed the country at the 146th position out of 187 countries based on the human development index. This situation calls for an urgent need to carry out the situation analysis of various challenges in Pakistan: identify the major areas to investigate, analyse the current situation, identify available national policies, analyse the policies in face of the current situation for gaps identification. This will help provide guidance for policy improvement and future research priorities essential for the socio-economic development and sustainability in the country.

### 2.2. Research Innovation in the Present Study

There are numerous inadequacies exist in the current studies carried out on the situation analysis of societal challenges in Pakistan. Primarily, it is due to the fact that significant amount of information data linked to societal challenges in Pakistan are available but rather inaccessible and inefficient that requires structured organization. Current existing research on the challenges analysis either address a one-point (specific) agenda or based only on the empirical data. To effectively address the challenges and devise development strategy, it should also include consultation with the stakeholders for identifying policy gaps and improvement priorities.

### 2.3. Scope and Outcome of the Study

This paper presents a brief summary of Pakistan policy and interests concerning the seven thematic societal challenges identified under the EU's Horizon 2020 research programme. The paper describes the current state of Pakistan on the topic and clear reasoning based on the literature review and consultation with the stakeholders from within the government, academia, research and development institutions and NGOs & INGOs. Suggestions are provided for policy improvements and priorities in Pakistan.

### 2.4. National Policies and Research Concerns in Pakistan

The government officials working in the line ministries, provincial and district administrative offices, institutions and agencies with the objective of good governance are responsible for the execution of policies in making their daily decisions in accomplishing various tasks to achieve sustainable development of the society. However, policy making in Pakistan is highly influenced by the current governance system, where policies are formulized under the directives of the people elected representatives (Politicians) serving as ministers/secretaries. Furthermore, the democratic government usually last for short span of time the policies and action plans routinely observe discontinuity when new government is formed that comes into power with different agenda and priorities and most of the time duplicate programmes that result in the wastage of resources. The result is an ineffective policy and poor line of actions for the governing institutions, despite an existing standard policy. If the society in Pakistan needs to be developed it should be delivered with services at the gross root level and not merely addressed in the upper level policies.<sup>2</sup>

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### 3. Context of this position paper

#### 3.1. CASCADE project

This national position paper is an output of the **CASCADE** project (**C**ollaborative **A**ction towards **S**ocietal **C**hallenges through **A**wareness, **D**evelopment, and **E**ducation) that aims to provide the foundation for a future International Cooperation Network programme targeting South Asian Countries, which will promote bi-regional coordination of Science & Technology cooperation.

The EU, whilst representing only 7% of the world's population, is responsible for 24% of world expenditure on research, 32% of high impact publications and 32% of patent applications, making it a world leader in research and innovation. However, over the past few decades, new key players have emerged within the international landscape shifting the previously dominant position held by the EU towards emerging economies.

The EU recognises a need to strengthen internationalisation through strategic policy action. The need for linkages with Asian countries has been highlighted given the region's rapidly growing research and innovation capacities and the urgency to address global challenges. South Asia in particular is home to more than 40% of the world's absolute poor, but will contribute nearly 40% of the growth in the world's working-age population in the coming decades.

CASCADE is an opportunity for raising awareness of the potential for EU-Southern Asia cooperation and stimulating regional and international participation. With the active contribution of South Asian countries, the endeavour will be to pave the way for more advanced, inclusive and innovative societies.

CASCADE is led by Professor Dilanthi Amaratunga at the Global Disaster Resilience Centre at the University of Huddersfield, UK. She can be contacted on [d.amaratunga@hud.ac.uk](mailto:d.amaratunga@hud.ac.uk) for more information on the CASCADE project. Further details on the project can also be obtained by visiting the project web site: <http://www.cascade-inconet.eu>

#### 3.2. Horizon 2020

The project coincides with the launch of Horizon 2020, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness. Running from 2014 to 2020 with a budget of just over €70 billion, the EU's new programme for research and innovation is part of the drive to tackle global societal challenges, and create new growth and jobs. International cooperation in research and innovation is an essential element for meeting the objectives of Europe 2020. Recognising the global nature of producing and using knowledge, Horizon 2020 builds on the success of international cooperation in previous framework programmes and is fully open to participation from third countries.

The 18 month CASCADE project is led by the University of Salford from the UK but targets and has the participation of all seven South Asian countries specified in the call: Afghanistan, Bangladesh, Bhutan, Maldives, Nepal, Pakistan and Sri Lanka.

During the project, the team will:

1. Compile a regional position paper that identifies global challenges and research priorities
2. Map and develop an inventory of national and regional stakeholders related to global challenges
3. Raise awareness on research & innovation priorities for fostering cooperation and towards building mutual understanding on how to address common global societal challenges

#### 3.3. Methodology

##### **Situation Analysis of Societal Challenges using Secondary Data**

The methodology adopted herein included review of published and grey literature (secondary data collection), semi-structured interviews and focus group discussions on the societal challenges in Pakistan, linking these with the seven thematic challenges highlighted under the EU's Horizon 2020 research programme, keying out the common societal challenges for the situation analysis. The national policies were analysed in light of the



available statistics: i) to assess if the policy address all the issues and ii) to understand if the policy is properly executed. This was carried out in the month of December 2013 to January 2014.

#### **Pre-Interviews Preparation and Planning**

Thematic questionnaires were developed, relevant to the societal challenges in Pakistan, for survey exercises to help conduct expert's interviews and roundtable. A brief document was prepared introducing the CASCADE's objectives, accompanying brief description of the Horizon 2020 societal challenges and a semi-structures agenda for holding meeting. Also, masses of university students (senior undergraduate and postgraduate) were educated on CASCADE and Horizon 2020 and were trained on conducting interviews of key experts. The documents were circulated among various identified stakeholders (policy makers, enforcer and end users) from within the government, academia, R & DIs, NGOs & INGOs, who were invited for interviews. This process was carried out in the month of February 2014 to April 2014.

#### **Procedure and Focus of Key Informants Interviews**

It was followed by 127 semi-structured interviews across the different stakeholders, where experts were asked on their opinion on various challenges faced by our society:

- Understanding the societal challenges likelihood among the society and their root causes,
- The impacts on the society,
- The role of the current policies and measures to improve the policies for tackling challenges towards better management.

#### **Procedure for Focus Group Discussion – Roundtable**

The findings from the preliminary situation analysis based on secondary data and interviews were integrated to prepare preliminary results for further validation and prioritization through focus group discussions with key experts from broader range of expertise. A total of 02 focus group discussions were conducted. There were 12 participants in the first FGD. Out of these participants 08 were those who were interviewed earlier. These experts included those who were working in the Center of Excellence for Rural Communities Development, those who execute government policies at the gross root level in delivering various programmes to the community for the development of society.

The number of participants in the second focus group discussion was 08 and included the experts who were also interviewed earlier. These experts primarily included government officials at the decision making level, selected keeping in consideration their knowledge and experiences. The roundtables helped in identifying and prioritizing policy improvements and research concerns that could benefit the communities to achieve the goal of national policies in establishing developing and sustainable societies across the country.

## 4. Thematic societal challenges

### 4.1. Health, demographic change and wellbeing

#### Background

Pakistan's health indicators, health funding, and healthcare and sanitation infrastructure are generally poor, particularly in rural areas, which is exacerbated by the growing militancy in the country making access to healthcare difficult. Leading causes of sickness and death include gastroenteritis, respiratory infections, congenital abnormalities, tuberculosis, malaria, and typhoid fever.<sup>3</sup> Diseases like depression and mental illness is widespread due to societal conflicts, intolerance and terrorism.

Health indicators also show that Pakistan lags behind in achieving its targets. The current situation shows that 10% children die before attaining the age of one month; more than 30% deaths under age five are due to treatable diseases and about 60% are related to the water and sanitation-related diseases; malnutrition contributes 35% of under five deaths and more than 40% children are stunted where in two provinces the malnutrition level is above emergency; only 30% births are attended by doctors, the rest are at home by semi-trained attendant; the maternal mortality rate is 276 per 100,000 live birth<sup>4</sup>; immunization nationwide coverage is less than 50%; nation-wide control programmes like TB, Malaria, Polio, etc., have not achieved success e.g. in the last six years more than 600 cases for polio are observed in the country and hepatitis B and C are rampant with almost 3 million cases in the country<sup>5</sup>. Therefore, as evidence suggests, the cost of treating these diseases is many times more than preventing them.

#### Current position

Both state and non-state; and profit and not for profit service provision are in practice for health care delivery. The provincial and district health departments, social security institutions, NGOs and private sector finance disease-specific programs and provide services at the gross root level through vertically managed mechanism. However, healthcare delivery faces challenges: urban-rural disparities in services delivery, imbalanced health workforce and lack of skilled practicing human resource.

Currently, Pakistan is the sixth largest country with a total population of just over 180 millions including 40% below the poverty line with a dependency ratio of about 65%, which restrained these poor having access to healthcare system. Contraceptive measures have increased to 29% with annual increase rate of 0.5 since 2007, however the population will rise to 260 million with 60% living in urban areas by 2030.<sup>6</sup> This will be unmanageable using the current physical and technological infrastructure of healthcare system.

#### Actions taken by the Government

Since 1990 the government at the upper central level have regularly devised various policies inline with the international standards and regard these to be very significant but the government fails to deliver robust healthcare at the gross root level, render the policies ineffective. This is due to the low level of investment and improper institutional mechanisms (lack of capacities in management) to ensure proper execution of preventive and cure programmes. Furthermore, the current policies focus on curative healthcare e.g. increasing the number of health facilities, constructing laboratories, ambulances and providing modern equipment. However, federal level policies and decisions when reach to the community level are enormously deformed by various political and cultural constrains that result in loss of resources rendering preventive health programmes less effective. It is due to the fact that no monitoring and evaluation is carried out against the development projects to assess their performance in achieving targets and take counter measures.

<sup>3</sup>Pakistan Demographic and Health Survey(PDHS) 2012-2013. National Institute of Population Studies, Islamabad, Pakistan

<sup>4</sup> PINS-2011 (2011). Pakistan Integrated Nutrition Strategy – Nutrition for National Development. UNICEF Pakistan. URL

<sup>5</sup>. Masud, T. and K.V. Navaratne (2012). The Expanded Program on Immunization in Pakistan: Recommendations for improving performance. HNP Discussion Paper, World Bank.

<sup>6</sup> Khan, MA (2009), 'Failure analysis of primary health care in Pakistan and recommendations for change', Insaf Research Wing, Islamabad



According to a recent health survey annually 35 million vaccines of polio are provided, in this case 66,000 families don't vaccinate their children and 2 million children don't have access to vaccines.<sup>7</sup>

The devolution through enacting 18<sup>th</sup> constitutional amendment has transferred the decision-making powers to the provincial governments. This has created opportunities for the provinces to devise mechanisms and long-term measures to strengthen their healthcare system through enhanced investment that will in turn improve healthcare delivery, once proper implementation at the gross root level is ensured. To fight polio and other diseases anti polio campaigns have been launched. Community awareness and involvement programs have also been designed to fight different diseases.

With the current globalization the health challenges faced in Pakistan are becoming a global concern. Thus, with the help of international donors like the German government a comprehensive health care package is being prepared; polio eradication campaigns have been launched with the support from WHO; USAID is also helping in providing quality healthcare at the gross root level in Pakistan. Different UN organizations currently provide financial support in primary healthcare, mother and child health, immunization and prevention of diseases.

Pakistan is a country with recurring natural and man-made disasters of intense severity (e.g. 80,000 deaths in 2005 Kashmir earthquake, 28 millions affected in 2010 & 2013 floods)<sup>8</sup>. The healthcare system would come into actions once the disaster has occurred and affected the community, with no early preparedness and warning plans. Similar, observations have been made in man-made disasters like crimes/wars/suicide attackers. Healthcare and management of the internally displaced people due to conflicts are beyond the scope. It is only recently that the government established National and Provincial authorities for disaster management (NDMA, PDMAs), which are responsible for disaster preparedness and emergency response through coordinated mechanisms involving all the line departments including health department.

### **Recommendations**

Reform recommended here can improve performance of the health system within a context of continued political uncertainty:

- Policymaking should adopt integrated approach involving all relevant stakeholders e.g. Health, Food and Nutrition, Water and Sanitation, Environment, etc.
- Improve health governance efficiency through creation of a formal link between policy, planning, and executing programs.
- Decision-making and program implementation should be managed by relevant professionals in prescribing curative medicines.
- Increase investment in health sector, especially those for poor and marginalized population through social health protection programmes and health insurance schemes.
- Strengthening of physical and technological infrastructure of health delivery system through long-term development and strategic objectives.
- State-of-the-art surveillance systems should be in place to detect outbreaks of diseases and tackle these early in time.
- Introducing better incentive programmes for government practitioners' commitment to ensure healthcare delivery at gross root level.
- Perform monitoring and evaluation against the preventive programmes for performance assessment in achieving targets and take counter measures.
- Establishing public-private partnership in improving health services delivery.

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<sup>7</sup> Pakistan Demographic and Health Survey(PDHS) 2012-2013. National Institute of Population Studies, Islamabad, Pakistan

<sup>8</sup> National Disaster Management Agency(NDMA) report 2012

## 4.2. Food security, sustainable agricultures, marine and maritime research and the bio-based economy

### Background

Pakistan has been an agrarian country where the economic growth is primarily dependent on the agriculture-based economy. Dominant sectors included crops, livestock, dairy and fisheries. Currently, 70% population's livelihood is provided by the agriculture sector<sup>9</sup>. This primarily included the sufficient wheat and rice production in the country. Agriculture contributes 25% to the GDP and 45% to labour force. Livestock and fisheries contribute nearly 50% of the agriculture value added and 11 per cent to the GDP and contribute 8.50% to the total export.<sup>10</sup>

However, due to shortfall in the energy, water scarcity and rapid escalation of prices (electricity, fertilizers, commodities, etc.), availability of insufficient cultivated land (presently only 40% of the total 196.72 MA area), land degradation due to water logging and salinity and natural disasters (floods, droughts), the agriculture sector in Pakistan is on the decline. The new Global Food Security Index 2012 currently ranks Pakistan at 75th position among 105 countries.<sup>11</sup>

Presently, more than 40% population is food insecure, inadequate in 60% Administrative units (Districts), about 70% food insecurity is observed in areas with national/international conflicts. The situation is worsened by the geographical location like remote mountainous region having low cultivating land and lack of access to market; calamity like floods (once every year or every second year) that affect the agriculture land and crops.<sup>12</sup>

### Current Situation

High cost of fuel and power for irrigational tube wells, high cost of fertilizers and its non-availability, and high prices of other agricultural inputs leads towards low yield, as the purchasing power of the poor farmers, which are the prime stakeholders of agriculture, is very low. This results in insufficient and expensive basic food commodities and agro-based industry products (e.g. sugar, textiles, floor and edible oil) due to increased population, which becomes unaffordable for the poor causing food insecurity in the region. This in turn affects the government adversely due to importing costly commodities in fulfilling the demands. FATA has the highest percentage of food insecure population (67.7 percent) followed by Balochistan (61.2 percent), and Khyber Pakhtunkhwa (KP) (56.2 percent). The lowest percentage of food insecure population (23.6 percent) is in Islamabad<sup>13</sup>.

Weather extremity is still a challenge in Pakistan, severely affecting crop yield, despite the introduction of genetically modified organisms (GMO), efficient irrigation systems and mechanized farming. Currently, the agriculture trade is enjoying improved productivity, making country self sufficient and even contributing to international markets through exports, but which is nevertheless due to a fortunate well-weather conditions at present. Furthermore, the agriculture sector focus primarily on the market-oriented mechanisms favourable to food production but less effort is made towards reducing environmental impacts on the agriculture.

Pakistan is lacking in the advanced research in the field of marine and maritime environment. There are a few institutes in Pakistan, which have research facilities in marine and maritime environment, which includes: Pakistan Marine Academy, National Center for Maritime Policy Research and Maritime Training Institute. These institutes focus on Maritime Environment including Marine environmental Management, sustainable utilization of ocean resources, prevention of marine pollution, conservation of marine ecology, disaster management and salvage. Maritime economy is also included in their research agenda including maritime

<sup>9</sup> PSLM-2013 (2013). Pakistan Social and Living Standards Measurement Survey: 2011–2012. Bureau of Statistics, Government of Pakistan, Islamabad, Pakistan. [URL](#)

<sup>10</sup> Pakistan Economic Survey 2013-14 [http://finance.gov.pk/survey\\_1314.html](http://finance.gov.pk/survey_1314.html)

<sup>11</sup> Pakistan Demographic and Health Survey [URL](#)

<sup>12</sup> PINS-2011 (2011). Pakistan Integrated Nutrition Strategy – Nutrition for National Development. UNICEF Pakistan. [URL](#)

<sup>13</sup> United Nations Development Program (UNDP), Chapter 4, Annual Report 2011 for Pakistan



transport, shipping port and infrastructure development, fisheries, human resources development related to maritime sector.

### **Action taken by the Government**

The present Government is striving hard to make the country self sufficient in power/electricity through construction of dams and power plants that will run by natural flows of water and also coal reservoir available in the country. The water stored in dam reservoirs will be utilized not only for agriculture purpose but also for production of electricity; it will lead towards development and foreign investment in the country, employment opportunities increasing purchase power of the people ensuring food security in the country. In addition to this, multiple projects are underway towards improving agriculture land through the construction of water conservation structures; precise land levelling and introduction of high efficiency irrigation system to reduce water losses to enhance productivity. The integrated pest management and organic farming related interventions/research is underway. Moreover, work on bio-fuel is in initial stage in the country to produce diesel to overcome energy crises in the region that will help support farming at the gross root level.

Pakistan had 340,000 hectares of planted forest i.e. 2.20% that is significantly small area as compared to the international standard according to which it should have been 25%, which is followed by deforestation due to rapid urbanization, farming, overgrazing, global warming, and tourism development<sup>14</sup>. Recently, the government and local authorities have encouraged and financed tree plantation to conserve soil and water resources. The practice of plantation of wild as well as fruit trees around villages, canals and roads has been successful and widely adopted. Pakistan has also initiated the adoption of agro-forestry technology and has developed several successful methods for inter-planting trees with crops. Projects have been started in northern Pakistan on watershed management to avoid land sliding by planting new trees in those areas. Also capacity building projects are in process where water harvesting is the main challenge. Also research is started on different species of plants, which are more fire resistant and can grow rapidly.

### **Recommendations**

The future priority areas for ensuring food security, sustainable agriculture and for marine and maritime research in Pakistan should primarily focus on the following:

- National policy execution and delivery of services at the gross root level are essential that requires increasing budget allocation for agriculture sector.
- Developing technical and managerial human resources and improve resources mobilization and devise mechanisms to monitor and evaluate development programmes to ensure effective services delivery.
- Water conservation and management including design and construction of additional storages; introducing farmer-managed irrigation systems; rehabilitation of the ageing canal and barrage systems to avoid water losses; developing effective drainage system to avoid land water logging and salinity; enhancing water productivity of water resources system in Pakistan.
- Industrial waste management; quality assessment of surface and ground water; treatment of sewage and industrial effluent; guidelines for groundwater abstraction and resources are key areas to address water pollution besides the need for good agriculture processes and good manufacturing practices.
- Improving natural resources management through strengthening governance capacity of the relevant departments and increasing funding.
- Exploitation of tidal energy potential, sea-based minerals, sea-based aqua culture and fishery industry, fish farming in Brackish water

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<sup>14</sup> PSLM-2013 (2013). Pakistan Social and Living Standards Measurement Survey: 2011–2012. Bureau of Statistics, Government of Pakistan, Islamabad, Pakistan. [URL](#)

### 4.3. Clean and efficient energy

#### Background

Pakistan's energy sector has high reliance on furnace oil, natural gas and hydroelectricity. The energy consumption has grown by 80% since 1995 and contributes to GDP growth rate by 4.5% per annum<sup>15</sup>. Pakistan has 21,000 MW electric power generating capacity (the supply mix include natural gas, oil, hydel power, coal and nuclear power), of which more than 20% is lost in the transmission and distribution. The present hydel:thermal mix is 31:69, ideal should be 70:30, since the oil and natural gas reserves are depleting.<sup>16</sup>

Currently, the energy demand exceeds the availability in all sectors in total by 4000 MW to 5000 MW, where the demand is increasing by 10% annually<sup>17</sup>. Presently, 30% of the population has no access to electricity at all and 80% have no access to piped gas. The current state of load management practices cost USD 5.8 billion to the economy, with a loss of 400,000 jobs<sup>18</sup>. Irrigated agriculture is the major user of energy for water, which is under severe degradation due to water shortage, non-availability and increased cost of electricity.

Consequently, per unit prices of all sources of energy went very high, it resulted into the closure of many industries and joblessness particularly of factory employees, cost of production went high that pushed many people below the poverty line, cost of transportation increased that in turn increased cost of many things of day-to-day use. People in the remote areas and those exposed to weather extremity are suffered the most due to the need of energy for cooling/heating. Every household invest in uninterrupted power supplies (UPS) or gas/fuel engine generators to fulfil the needs but which is nevertheless costly and cannot be afforded by poor people. As an impact there is general restlessness, tension, headache, insomnia and depression in society resulting in chaos and instability.

#### Current position

Presently numbers of projects are underway to upgrade the capacity of existing hydel power systems and establish new ones to meet the ever-growing demand. The potential of renewable energy resources included (Wind 340,000 MW; Solar 2,90,000 MW; Hydro-Large 50,000 MW; Hydro-Small 3,100 MW; Bagasse Cogeneration 1,800 MW; Waste to Power 500 MW; Geothermal 550 MW)<sup>19</sup>. Pakistan comprised of more than 40,000 villages far from grid thus becomes costly; Rural Electrification Program will be introduced using solar home systems but which is nevertheless very costly for a household.

Our communities especially those living in rural areas are not consuming sufficient amount of energy. They have either little access to the source of energy like electricity due to excessive load shedding or due to poverty or non-connectivity to the national grid.

#### Actions taken by the Government

Work on developing policies, action plans, guidelines and management mechanisms for the implementation to ensure sufficient energy is underway and satisfactory. Power policy has been formulated to ;decrease supply demand gap from 4500 - 5000 MW today to 0 MW by 2017; decrease cost of generation from 12c /unit today to ~10c /unit by 2017; decrease transmission and distribution losses from ~23-25% to ~16% by 2017 Increase collection from ~85% to 95% by 2017<sup>20</sup>.

Longer-term projects like Bunji having 7,100 MW potential and Diamer-Bhasha having 4,500 MW potential have been started that will be completed by 2020 and six additional hydel power projects with total 388MW potential are underway that will be completed by 2015<sup>21</sup>. Nevertheless, most of the major projects are facing

<sup>15</sup> Pakistan Demographic & health survey 2012-13, preliminary report

<sup>16</sup> PSLM-2013 (2013). Pakistan Social and Living Standards Measurement Survey: 2011–2012. Bureau of Statistics, Government of Pakistan, Islamabad, Pakistan [URL](#)

<sup>17</sup> Pakistan Energy Year Book 2012 Islamabad Pakistan

<sup>18</sup> State of Industry Report(2012)National electric Power Regulatory authority (NEPRA)(2011-12) Islamabad Pakistan

<sup>19</sup> Quality of imported gas(2013)Document of ministry of Petroleum & Natural Resources(MPNR)

<sup>20</sup> Pakistan Energy Year Book 2012 Islamabad Pakistan

<sup>21</sup> Oil & Gas Regulatory Authority (OGRA) 2013 Islamabad Pakistan



the political challenges and availability of low budget. Various other development projects included Gaddani power project and developing solar energy resources are underway.

Various actions being taken for energy conservation and management included load management through load shedding; widespread use of energy savers and lead lights to bring 75% savings in consumption; introduction of smart meters; in months of peak demands large consumers like markets and marriage halls are closed in late evening; crackdown against electricity pilferage is started through vigilant committees.

Few examples are available for industries producing energy using the waste/scrap rubber tyres of vehicles that are mixed with coal, to increase its enthalpy, and heated in kiln. The total heat is carefully recovered (captured) to convert it into energy for running industries without putting harm to the environment; because the main components of rubber are fragmented due to extreme heating in kiln. The analysis has shown that this makes the industry self-sufficient in the energy requirements. However, cases also exist *“when rubber, lather are similar products have been used for burning carelessly in kiln for the energy purposes that put harm to environment are prosecuted, when identified by the Environmental Protection Agency monitoring and evaluation team<sup>22</sup>”*.

National energy building code has been drafted; its incorporation in the building by laws will reduce energy consumption by 30%.<sup>23</sup> Additionally, building technologies practicing cavity walls and sandwich panels (SCIP technology) are introduced that avoid heat losses from building thus reducing energy consumption besides making the building more resilient against disasters.

#### Recommendations

- We should concentrate on indigenous resources and attract foreign investments to develop power sector and oil and gas sector to overcome the energy crisis in Pakistan<sup>24</sup>.
- The country is too much dependent on costly thermal sources (gas fire, oil fire) for power generation that require to be minimized.
- Alternate sources of energy like wind, solar and biomass require exploitation and Pak-Iran gas pipe line project can possibly help to overcome energy crisis in Pakistan by larger part.
- Factories should practice running on solar panels and windmills that could make the owner self-sufficient and could save huge amount of money over long run besides ensuring the security of employees
- There is a strong need to raise awareness in the public to reduce energy consumption through awareness campaign on electronic and print media
- Need to introduce basic education on energy in the curriculum, energy conservation walks and seminar should be conducted, workshops need to be conducted for developing mechanisms
- Proper land use planning can help in reducing energy losses and creating green cities

The future priorities and action plans for the government are as follow:

- Introducing cost-effective energy-mix.
- Up-gradation of transmission and distribution systems.
- Designing energy efficient plants.
- Expanding water storage capacity and hydropower systems.
- Developing coal clean technologies, Co2 capture and storage.
- Focusing on Oil and gas exploration.
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<sup>22</sup>Dr. Hussein Ahmad, Director, Environmental Protection Agencies, Government of KP, Pakistan

<sup>23</sup> State of Industry Report(2012)National electric Power Regulatory authority (NEPRA)(2011-12) Islamabad Pakistan

<sup>24</sup>Mr. Syed ZainUllah Shah, Chief Planning Officer, Energy & Power Department, Government of KP, Pakistan



#### 4.4. Smart, green and integrated transport

##### Background

Pakistan transport is ranked globally; roads 79, railways 59 and port infrastructure 72 among 142 countries in the world and air transport infrastructure is placed at the 85<sup>th</sup> and per seats availability at 48<sup>th</sup>. However, very recently most of the air transport of the Pakistan International Airline is grounded due to technical related issues of the crafts, requiring major restoration. Currently, PIA has obtained aircrafts from Turkey on lease, suffered losses of more than Rs. 60 billion in the last two years.

The public, private and government sectors kills much of their fruitful time due to poor management of road traffic, increased number of security check points and no parking facilities. It is resulting in traffic jams, high energy consumptions, environmental pollution, increasing duration of travel and resulting in hasty traffic giving rise to state of conflicts. It is interrupting daily businesses and has adversely affected the economic development of individuals in the populous urban areas. The surveys and the findings reveal that during 1998-2009, the proportion of increase in road user vehicles is 12.64% while that of road network expansion is only 0.85%<sup>25</sup>. The data shows that major contribution to increasing number of vehicles is private cars, which constitute 73.35% of the total registered vehicles and has shown 228.98% increase during 1998-2009.<sup>26</sup>

In the recent past Pakistan Railways was breathing its last; operations on minor routes were closed first, followed by major routes. Until the 1970s Trains were the primary mode of transport in Pakistan but due to government focus on road transport, the railway budget was reduced (which is only 30% of the road expenditures), declining rail mode of transport. Currently, the Railways transport mode is exploited largely by the poor people for their business and travels, operating 228 trains and carries around 65 million passengers annually, which are suffered due to railway transport decline<sup>27</sup>.

##### Current Position

Fifty mega projects have been planned including highways, expressways and motorways across the country towards developing the transport sector. The present government is launching a major project to connect Gwadar port with China through fast railway track, for establishing national trade corridor for boosting the economy of Pakistan. Pakistan Railways lack the standard policies for implementation. *“We are far behind from developed countries; we are limiting our operations in the time when the entire world is switching to electric and bullet trains<sup>28</sup>”*.

The average vehicle emits 20 times more hydrocarbons, 25 times as much carbon monoxide and 3.6 times as much nitrous oxide as a vehicle in the United States, which account for 90% of pollutants<sup>29</sup>. The government is laying green belt along the roads. Additionally, programs pertaining to plantation as an extracurricular activity are introduced at the school levels. In the early 1990s the government had introduced a better incentive packages to import duty free new taxis, buses, and mini-buses for establishing efficient and environmental friendly public transport system. However, the policy did not long last due to change of government.

##### Steps taken by the government

To promote urban transportation Urban Policy Units have been established at provincial level that analyse the present urban transport modes and introduce efficient system; the Lahore Metro Bus Service, the Mass Transit System in Peshawar, and Daewoo Bus Service in Pakistan are few successful programmes. Other measures should include replacing private transport system with efficient public transport. However, coping with the

<sup>25</sup> Vision-2030 (2007) Vision 2030 – Pakistan in the 21<sup>st</sup> Century. Planning Commission, Government of Pakistan, Islamabad, Pakistan [URL](#)

<sup>26</sup> PSLM-2013 (2013) Pakistan Social and Living Standards Measurement Survey: 2011–2012. Bureau of Statistics, Government of Pakistan Islamabad, Pakistan [URL](#)

<sup>27</sup> PSLM-2013 (2013) Pakistan Social and Living Standards Measurement Survey: 2011–2012. Bureau of Statistics, Government of Pakistan, Islamabad, Pakistan [URL](#)

<sup>28</sup> Mr. MianFazlillahi, ACO/ATO, Pakistan Railways

<sup>29</sup> Reducing Risks and Vulnerabilities from Glacial Lake Outburst Floods in Northern Pakistan, a Project submitted by Government of Pakistan to the Adaptation Fund Board, 2010

increased urban population and management of internally displaced people, remains a challenge.

The government has taken some initiatives, which are not sufficient though, to improve road transport mode such as:

- Road widening to help cope with the traffic congestion problem.
- Illegal commercial extensions have been demolished in order to produce area for widening the road.
- Flyovers have been introduced at the points where traffic was not controllable through ordinary practices like channelization or diversion.
- Activating traffic police, to help regulate the traffic flow, the government has introduced incentive scheme (percentage earning in traffic fines) to improve the efficiency of traffic police.
- CCTV cameras are installed, to have check on the traffic and the regulating police.
- Shifting of Bus terminals to areas that less affect traffic flow.

The private sector is somehow playing a minor role by putting their investments in railway transport mode but as for as Government is not taking serious steps, there is not much that private sector could do. The “Shalimar Train” is a good example of private sector investment.

The government has taken initiative to utilize the Indus River’s waterways for freight to help cut-down the petroleum import bill. A pilot project is being launched on a 200km stretch of Indus, followed by 200km on Nara and Jamrao Canals in Sindh and 300kms on Karachi Canal in Punjab and Balochistan. According to experts, every kilometer of a standard 24-foot-wide road costs Rs 80 to 100 million whereas the cost of commissioning the entire 200kms of the Indus Pilot Project was less than Rs 100m<sup>30</sup>.

### Recommendations

Large dependence in the country is on the road transport, carrying 90% passengers and freight traffic, increasing with a rate of 10% per year. The issues (degradation and damageability) related to the transport infrastructure included no engineering design and no regulated supervision or design to out-dated rules and negligible routine maintenance. Following are the areas need attention:

- Regular traffic counts for actual load demand measurement, identifying overloading and correlating with physical damages in pavements and their prevention. To help in the engineering design of road transport.
- Road factor should be included in the urban planning.
- Private transport should be replaced by public transport to improve services and avoid accidents.
- Computerized vehicle security system should be introduced to avoid delays at security checkpoints in the urban centres, commercial roads, and educational institutions roads.
- There is a dire need for raising awareness among the people, educating them about the transport use and traffic safety through print and electronic media and should be included in curriculum.
- Traffic management should focus on classification of traffic routes and managing traffic density, enforcing traffic regulations stringently, making sure vehicle drivers are trained in driving learning schools and licensed.
- To address environmental problems requires establishment and activation of vehicle emission testing stations and introducing fuel-efficient and environment friendly vehicles.
- Railway transport, which is built during British rule before the independence in late 19th Century and early 20th Century, need major renovation and restoration. Public-private partnership and investment can boost railway transport mode. It will decrease large dependence on road transport.
- Pakistan International Airlines requires complete restoration, increase investment and private sector involvement to revive the PIA competitiveness.
- Pakistan has a huge potential for water transport mode. The government should focus on exploitation of Indus River and improvement of waterways.

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<sup>30</sup> Discussion Paper on tax incentives and other economic instruments to promote up gradation of vehicular fuel quality in Pakistan, June 2012

## 4.5. Climate action, resource efficiency and raw materials

### Background

Geographically, Pakistan has varied landscape and environment like mountains with glaciers, forests, rivers and deserts. This makes the country a perfect candidate for all type of natural disasters like avalanche, floods, droughts, etc. Pakistan has been placed among the high-risk countries on the bases of Global Climate Index. Environmental degradation costs the country at least 6% of GDP resulting in illnesses and premature mortality caused by air pollution, inadequate and unsatisfactory water supply, and lost livelihoods due to reduced agricultural productivity and direct contact with fertilizers and pesticides.<sup>31</sup> These burdens are compounded by problems such as hazardous solid waste, the loss of forest cover and desertification, soil erosion and loss in soil fertility. Pakistan is placed at 80<sup>th</sup> position out of 122 nations based on drinking water.<sup>32</sup>

There are many challenges related to climate changes in Pakistan that include;

- Considerable increase in frequency and intensity of extreme weather events.
- Irregular monsoon rains causing floods and droughts & famine, that will damage infrastructures, fertile lands, agriculture and forest cover.
- Melting of glaciers and the resulting avalanche.
- Increased siltation of dams reservoirs, increased intrusion of saline water, threat to coastal areas due to projected sea level rise.
- Increased health risks like diarrheal disease, mental depression, malaria and dengue fever, and climate change induced migration.
- A major phenomenon observed due to heavy rainfall also included massive land sliding mostly in the northern areas that damage infrastructure, bury villages, interrupt communication lines (roads) and waterways, cause local flooding, and consequently affect communities, livelihood and livestock.

### Current situation

Currently no large reservoirs exist, treaty with India on water related issue is not balanced. Pakistan has a number of agencies working at the federal and provincial levels (e.g. Pakistan Meteorological Department, Pakistan Environmental Protection Agencies, among others) to work towards understanding the current environmental status, through installing station at Quetta to monitor Ozone layer, geomagnetic variation and global atmospheric watch, which however require to be extended to other locations across the country to improve data collection.

No early warning system and evacuation mechanism exist for floods in Pakistan that results in the loss of lives and livelihoods. The authority can provide reliable information about the floods 2 or 3 hours before, which is not enough time to shift the population to safe areas. Population encroachment to flood plains is routinely observed, which requires remote monitoring systems like the radar technologies that require the government attention and financial support.

Non-agriculture and non-energy raw materials including Chromites, Marbles, Gems, building stones materials, etc., are being used in Pakistan to benefit the society. Other wastes e.g. expired rubber tyres are pressed and melted to produce fuel-like liquid that is used as furnace oil in cement factories and building materials (clay units) firing kilns for energy purposes, but which is unfortunately sometime illegally mixed with diesel.

### Action taken by the Government

The government is committed to mitigate disasters related to climate change, through establishing Climate Change Cell at the provincial level to conduct research, improve service delivery and raise awareness against the climate change for early preparedness and emergency management. Other initiatives included, that Pakistan has signed the Kyoto Protocol with UN and is a signatory of UNFCCC.

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<sup>31</sup> Pakistan Strategic Country Environmental Assessment, 2012

<sup>32</sup> Environment section, Pakistan Economic Survey 2010-11

The federal government has established National Disaster Management Authority and the associated authorities and units at the provincial and district level, respectively, to formulate policies and ensure pre- and post-disaster management mechanisms. However, an integrated and multi-disciplinary approach is needed to make use of latest technologies and tools for disaster risk management. Furthermore, *“lack of resources, lack of capacities and financial constrains still remain challenges for NDMA for making disaster risk measures and process effective<sup>33</sup>”*.

Pakistan contributes a tiny to total global greenhouse emissions (largely due to use of natural gas as a source of energy); the relative GHG contribution of energy is 51%, agriculture sector contribution is 39%, industrial process is 6%, land use and forestry is 3% and waste is 1%.<sup>34</sup> The government has launched projects titled Tsunami Trees, which highlights the government efforts to create green society in order to increase O3 (Ozone layer) that will help in GHG further reduction.

The government has taken measures for the preparedness of communities living in the hazard prone regions; they are educated and trained about the precautionary measure to be taken before and after the disaster occurrence to minimize the impacts. Recently, the government has deployed land movement detection and early warning instruments (extensometer), which aware the authority early in time that help in vacating the population in danger due to land sliding.

#### **Recommendations:**

The following priorities areas require attention:

- Increased investment is required to adopt climate change. Cost-effective and innovative alternatives should be researched and introduced.
- Practice proper land use planning to avoid establishing cities in hazardous region (flood plains, land slide prone, etc.).
- The government need to put in place monitoring and early warning systems for monitoring environment, community development, land use, floods and land sliding.
- In the face of climate extremity the agriculture sector should adopt and develop new crops less prone to heat stress and more drought tolerant; improve energy efficient farm mechanisms; solar water desalination; biotechnology for carbon responsive crops.
- The energy sector should promote hydropower generation, renewable energy alternatives like solar, wind, geothermal and bio-energy to mitigate carbon emission.
- The agriculture sector should focus on reducing the use of chemical fertilizer, water and pesticides; changing fertilizer composition to reduce soils' nitrous oxide release; introduce breeds with low methane product to reduce air and water pollution.
- Water storage and control infrastructures require improvement for effective flood mitigation.
- Water conservation and resource management and solid wastes recycling should be given attention to improve the quality of agriculture and drinking water.

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<sup>33</sup>Mr. Shah Nasir Khan, Advisor Housing & Disaster Resilient Constructions, Provincial Disaster Management Authority, Government of KP, Pakistan.

<sup>34</sup> Pakistan Economic Survey 2012-13, Ministry of Finance, Government of Pakistan

## 4.6. A changing world -inclusive, innovative and reflective societies

### Background

Respect for all, human rights, freedoms, and the rule of law, both at national and international levels, which are fundamental to the inclusive society, are at the lowest level in Pakistan. *“There is discrimination on the basis of economic resources, political status, or social standing. Individuals are not treated equally under the law. Legal institutions do not guarantee equity, justice and equal opportunities for all citizens. Violators of human rights generally are not brought to justice”*.<sup>35</sup> The security of the individuals is not maintained by the state. Therefore, there is a little feeling of inclusiveness in the mind of a common man. The resources are not allocated and utilized in a fair and equitable manner. *This fact has made Pakistani society an exclusive, polarized, and disintegrated one rather than an integrated, innovative, and inclusive society*<sup>36</sup>.

There are a few facts, which depict the situation of inclusiveness and innovation in Pakistani society, for instance:

- In terms of participation Pakistani citizens mostly are not able and motivated to participate in civic, social, economic and political activities, both at the local and national levels
- There is an absence of strong civil society for active participation and making public policies and institutions accountable.
- There is no universal access to public infrastructure and facilities (such as community centers, recreational facilities, public libraries, resource centers with internet facilities, well maintained public schools, clinics, water supplies and sanitations)
- Similarly, due to unequal access to public information popular participation is difficult thereby limiting the well-informed members of society.
- The absence of equity in the distribution of wealth and resources is another critical element which hinder in way of Pakistani society to become inclusive and reflective.
- The socio-economic policies are not geared towards managing equitable distribution and equal opportunities
- There is little tolerance for and appreciation of cultural diversity.

### Current situation

Pakistan is lacking in effective leadership, which can play a crucial role to the development of an innovative and inclusive society. In Pakistan, leadership is not representative of the society. A disconnection between the people and their leaders may eventually result in a non-reflective society.

The most common way of addressing this critical element at the local level is by engaging in open consultations with members of society about municipal issues such as the budget, and enhancing the free and timely flow of information to citizens and other stakeholders. Popular participation in decision-making and policy formulation processes are not sought for at all levels of governance. At the same time, there is a little effort made to achieve transparency and accountability by all decision-makers and stakeholders.

The impact of the non-inclusive, non-innovative and non-reflective society is not equal on all segments of society. Marginalized groups (female, poor, children, handicapped etc.) are most affected. Often policy-makers do not consider the poor and other marginalized groups as important stakeholders, and therefore, do not incorporate their needs and concerns. They do not have the equal right to work and the right to participate in social, cultural and political life. The right to claim will regress if one is discriminated.

As the literacy rate of the country is quite low as compared to the other developing countries of the region, the opportunities to learn the history and culture of one's own and other societies are less. Generally people do not understand and appreciate other societies, cultures and religions. Uneducated youth is unable to inculcate the respect and appreciation for diverse cultures. The opportunities to learn about the historical

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<sup>35</sup>Dr.Saeed Ahmad Watoo , Director National School of Public Policy Lahore, Pakistan.

<sup>36</sup>Mr Salman Abid Regional Director, Strengthening Participatory Organization( SPO), Lahore, Pakistan

processes and innovative changes are less available to the common man. People generally do not understand the way in which they and others have been affected by socially inclusive or exclusive policies of the government, which ultimately influences their values, choices and judgments.

### **Steps taken by the Government**

Social policies in Pakistan are generally designed, implemented and monitored by the governmental institutions while civil society, the private sector, academia, various social groups and general public is not empowered to participate in the policy formulation processes. Planning, budgeting and resource mobilization during policy formulation is also done by government itself with little and insufficient input from the favoured not-for-profit organizations. Due to the lukewarm interest of the government the social inclusion policies are not adequate, accessible, financially sustainable, adaptable and efficient. There is a little support to strengthen capacities of institutions that are working on justice and social inclusion.

However, there are a few strategies and policies made on the part of government to make the society inclusive. Pakistan has set forth a policy that addresses the challenge faced by innovative society; driven by the need of knowledge-based economy, technology and competition. Pakistan is placed at the 104th position out of 148 economies, based on the higher education, trainings and research. Recently, a couple of Pakistani universities have been included in the top 300 universities list.<sup>37</sup>

The government actions towards creating innovative, inclusive and reflective societies included formulation for policies and strategies for education, women empowerment in the country, education and employment opportunities for disabled persons. However, the country spending on education sector is only 2.0% of GDP against the requirement of 7% of GDP, besides the poor institutional capacities. To address inclusiveness, in government jobs 5% seats for minorities and disabled and 15% for women are reserved.<sup>38</sup> Women are also encouraged to participate in the political process by reserving 16% of seats at national and provincial assemblies and in local governments<sup>39</sup>. However, the governance system needs to have the capacity to provide the citizens with maximum opportunity to participate in the process of political and social decision-making.

Furthermore, Pakistan has joined hands with UNESCO to map the cultural assets of the country; it has succeeded in the general awareness regarding the significance of various sites that will help in creating reflective societies. Pakistan with a support from Norwegian Governments has mapped cultural resource and knowledge system –from traditional arts and crafts to agricultural practices.

### **Recommendations**

Following are the priority areas to create innovative, inclusive and reflective societies in Pakistan:

- One of the greatest difficulties even at a local level is the actual census of population. People remain uncounted and therefore invisible. People need to be noticed, recognized, and have their own voices.
- The concerns and needs of individuals and groups are taken into account by policy-makers.
- People must be able to engage in society's activities and social networks in their daily life, including economic, social, cultural, religious, and political activities.
- People must have rights to act and claim, rights to be different, legal rights, rights to access to social services, such as housing, education, transportation, and health care resources to fully participate in all aspects of societal activities are the ultimate step for successful social inclusion
- Creation of an open space for dialogue to explore policy options, common values and identity, bringing communities together, and ensuring that the excluded and marginalized are heard.

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<sup>37</sup> Pakistan: world report 2013 human Rights Watch

<sup>38</sup> SitAn-2012 (2012). Situation Analysis of Children and Women in Pakistan. National Report 2012. Government of Pakistan, Islamabad, Pakistan. [URL](#)

<sup>39</sup> Sustainable Development conference 2009,

[http://www.sdpi.org/sdc/12thsdc/role\\_of\\_women\\_parliamentarians.html](http://www.sdpi.org/sdc/12thsdc/role_of_women_parliamentarians.html)

## 4.7. Secure societies - protecting freedom and security of the country and its citizens

### Background

Geographically and politically, Pakistan is placed in a region of great tension influenced by both the immediate neighbours and global powers and is playing a key role in matters of global security. The security determinants that highlighted in the EU's Horizon 2020 included basic human rights – violence, crime, war, and abuse protection and safety against environmental forces – protection against natural disasters. The internal terrorism is on rise since the October 2001 that made number of productive activities meant for socio-economic development, uncompetitive both in the domestic and international markets resulting in employment and businesses insecurity. The terrorism and crimes mostly carried out in FATA, known as lawless area. Based on the freedom index, Pakistan is placed at the 154<sup>th</sup> position out of 178 countries and placed at the 134<sup>th</sup> position out of 135 countries on the bases of gender gap index.<sup>40</sup>

The crime rate in Pakistan is large with about 500,000 cases registered only in 2010; the crime predominantly included murder, kidnapping, kidnapping for ransom and rape. Pakistan has average police strength of 186 per 100,000 people with more than 1000 police stations<sup>41</sup>. More than 30,000 cases have been registered in the last six years on violence against women. More than 18,000 people are killed and more than 50,000 others has been injured, in armed conflicts and suicides since the 2007<sup>42</sup>. The total number of Pakistani killed in crimes and terrorism in the last decade is around 60,000 and more than 200,000 injured; more than 1.50 millions affected<sup>43</sup>; critical facilities and infrastructures destroyed; many people disappeared. All these terrorized and traumatized every other individual, resulting in increase in unemployment and poverty, inclination of people towards unfair means and crimes, harmful effects on developing community programmes, brain/drain to foreign countries.

The community's insecurities also included sectarian violence among religious groups; with total incidence of more than 700 in the last six years resulting in casualties and mass displacement. In juvenile the security threats include child labour, child marriage, crimes against the child, more than 4,000 children victim to sexual assault in the age of 11 to 15 years; children of 12 to 18 years being used as suicide bombers by militants<sup>44</sup>; schools infrastructure is destroyed by militants, girls are warned and refrained from going school. Majority of these problems are faced by the lower class, minorities and women.

Threats from the natural shocks predominantly included (floods; cyclone; earthquakes; droughts) with a USD 0.60 millions impacts per year<sup>45</sup>. Till now the country is active in relief activity and somehow in response but rather weak in mitigation and preparedness, the reconstruction primarily depends on foreign support.

### Current position

Protection against natural disaster is at its minimum as resources are not being allocated for pro active risk reduction including hazard, vulnerability and risk mapping; institutional strengthening; improvement of essential facilities and critical infrastructure. The recent large disasters of 2005 Kashmir earthquake and 2010 flood clearly demonstrate the country poor management system against natural disasters. Relief and recovery mind-set is still prevailing in the country and focus on mitigation and preparedness is negligible.

*"International calls to Pakistan don't pass through the legal gateways PTCL but rather are bypassed through*

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<sup>40</sup> Mohsin, Z., 2013, "The Crisis of Internally Displaced Persons (IDPs) in the Federally Administered Tribal Areas of Pakistan and their Impact on Pashtun Women", Fata research center, Islamabad.

<sup>41</sup> Pakistan: world report 2013 human Rights Watch

<sup>42</sup> Pak Institute for Peace Studies (PIPS) Annual Report 2013

<sup>43</sup> Fact Sheet, P&D Department, FATA Secretariat Govt of Pakistan

<sup>44</sup> National Counterterrorism Centre. (2010 "Report on Terrorism". [[http://www.fbi.gov/statsservices/publications/terror\\_07.pdf](http://www.fbi.gov/statsservices/publications/terror_07.pdf)]

<sup>45</sup> PSLM-2013 (2013). Pakistan Social and Living Standards Measurement Survey: 2011–2012. Bureau of Statistics, Government of Pakistan, Islamabad, Pakistan. [URL](#)





*illegal GSM VOIP gateway exchanges*<sup>46</sup> that cannot be monitored by law enforcement agencies and hides the original caller ID. This help terrorist make use of such communication system for cyber related crimes. The majority of the complaints received are related to social networking (Face book, e-mail hacking) and online businesses (PayPal, online banking, lottery fraud, work from home scam, etc.).

### **Actions taken by the Government**

The government is trying its level best to cope with social insecurity but still a lot need to be done as the provincial government is faced with lack of resources, professional training and heightened security issue due to the on-going war against the militancy. Police is the only force at disposal of the provincial government to counter crime but it is overstretched and spends its energies in countering the militancy, hence affecting its performance in terms of crime control. Numerous physical and technological infrastructure development projects are planned/ underway to improve the capacity of government in controlling crimes and violence.

Many crimes are faced as a result of careless management of Afghan refugees (7.2 millions) and illegal immigrants and internally displaced people. The national database and registration authority founded "Secure" cards for registration of more than 1.75 millions<sup>47</sup> Afghan Refugees, issued under the supervision of UNHCR and UN Deputy High Commissioner for refugees. A significant control is made over many crimes.

Related to cyber crime security in Pakistan, PECO 2007 (Prevention of Electronic Crime Ordinance) is collapsed; new cybercrime bill, named Cyber Security Council Bill 2014, is in senate for discussion; ETO 2002 (Electronic Transaction Ordinance) section 36/37 is in practice. Currently, pre-activated mobile Sims blocked due to security situation in the country. Since, the terrorist use mobile Sims which are already activated on someone else CNIC, to help them not be detected/located. However, lack of advanced technical equipment, expert human resource, finances and legal impediments are barriers to achieve cyber-security.

### **Recommendations**

- Priorities included ensuring individual and community's security i.e. basic needs, rights and freedom and environmental protection in the country. It should be ensured by means of constitution protection, the government provide guarantee on issues ensuring provisions and arrangement; International agencies, for assistance and support; social safety nets, support and employment creation; public provisions.
- The following actions can be taken to control terrorism by larger parts<sup>48</sup>, including civil registration of all Pakistani citizens; business intelligence and decision support applications; establishing crime control centres; shifting towards E-governance and secure documents record.
- The country should ensure minimum essential economic opportunities for all to ensure economic security; safety and security of each individual against physical threats to ensure personal security; gender equality and women empowerment to ensure women security; legal protection through panel to ensure children security; disaster risk reduction to secure resilient Pakistan and ensure environmental security.
- Policy recommendation included utilization of national potential in all resources; increased investment in education; enforcing law and diminishing religious rigidity; ensure globalization for economic security;
- Small and medium enterprises (SMEs) and Public private partnerships should be promoted in all essential sector like energy, roads, airports, ports and shipping, water and sewerage, to help generate employment opportunities and alleviate poverty. This will consequently enhance industrial and commercial competitiveness.

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## 5. Summary

This paper presents the situation analysis of societal challenges in Pakistan, highlighted in Horizon 2020, under the EU's FP7 CASCADE Project towards identifying the required improvement in national policies, highlighting the research priorities in the country and paving path for regional and bi-regional research collaborations. The methodological framework adopted included evaluation of relevant policies in the face of available statistics, review of published and grey literature and consultation with various stakeholders from within the government, academia, research and development institutions, NGOs & INGOs.

The paper presents the background on the societal challenges, their importance in the region; the current situation of the practices and prevailing conditions; the actions taken by the government to tackle these challenges; followed by recommendations made herein upon evaluation of the situation and experts opinion to address challenges, towards creating a developing and economically sustainable communities in Pakistan.

Priority areas for mutual collaboration with the EU in the health sector included devising integrated health policy, developing physical and technological infrastructure for health care services and delivery, designing and practicing state-of-the-art surveillance systems to detect outbreaks of diseases treat early in time (e.g. chingo virus, dengue fever, bird flue), designing cost-effective and efficient vaccines for prevention of diseases (e.g. Hepatitis, TB, malaria, polio, rabies, measles)

In the food, agricultural & livestock sector priorities included research on water conservation and management and exploitation of water resources, waste management and treatment to improve quality of surface and subsurface water, introduce good agriculture processes and better manufacturing practices, natural resources exploitation and management, biotechnology research for improving productivity and exploitation of sea-based resources.

In the energy sector priorities included research on Hydel power energy production, oil & gas exploration, developing coal clean technologies and exploitation of coal reserves for energy production, alternate sources of energy require exploitation (e.g. winds, solar and biomass), introducing reduced energy consumption physical infrastructures and technologies.

In the transport sector priorities included developing region-specific engineering tools for the design of roads, fabrication of vehicle emission testing tools, introducing fuel-efficient and environment friendly vehicles, railway and airway transport modes requires major physical infrastructure and technological restoration, Indus River and waterways require exploitation.

In the climate change and environment sector priorities included introducing cost-effective and innovative climate change adaptation methodologies, developing hazard early warning and mitigation systems, climate resistive crops and efficient farming techniques, industrial waste disposal and re-cycling.

In the innovative society sector priorities include developing and promoting the education and research environment, developing governance system, developing technological sector, developing sports and tourism sectors, conservation of the cultural and religious heritage.

In the freedom and security sector priorities included devising policies that ensure individual and community's security, introducing advanced and smart technologies for civil registration, establishing and designing crime control centres, cyber security framework and introducing E-governance system.