Identification of Financial Requirements to Achieve the SDGs in Punjab
The Punjab Economic Research Institute (PERI) is a statutory body attached with Planning and Development Board, Government of the Punjab, with a mandate to carry out socio-economic research on issues of provincial and national importance and to support planning and development work of Punjab Government.
Identification of Financial Requirements to Achieve the SDGs in Punjab

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The Punjab Economic Research Institute (PERI) is a statutory body attached with Planning and Development Board, Government of the Punjab, with a mandate to carry out socio-economic research on issues of provincial and national importance and to support planning and development work of Punjab Government. It is the oldest economic research institution in the country. The Institute was reorganized by the Punjab Government in 1975 in order to reactivate the Board of Economic Inquiry which had an unbroken record of economic research going back to 1919. The Institute became a statutory body in November 1980.

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Foreword

United Nation Development Programme (UNDP) sponsored agenda known as Sustainable Development Programme (SDGs) has been built upon the success of Millennium Development Goals (MDGs) and it has been adopted by 193 countries including Pakistan. Pakistan has actively participated in setting 2030 agenda by proposing a set of goals, targets and indicators. There is a political commitment of Pakistan as well as the Punjab from the apex level of the establishment for development transformation within the framework of SDGs implementing through national/provincial polices and planning tools. The government of Punjab is very committed to achieve the universal agenda for growth and development of the province and has decided to align sectoral policies and development plans with SDGs to achieve its targets by 2030. To meet this vision, ambitious financial plans are also needed. As, public finance is essential to achieving progress in SDGs, this report is an attempt to analyze the financial resources which requires to footprints Government of Punjab’s journey to development so far through the sustainable development framework. This report provides analysis based on assessment of financial needs, current public financing trends and future investment requirements and gaps to achieve the specific targets and indicators of Poverty, Health, Education & WASH SDGs in Punjab. This type of analysis has not been done much at Punjab level to estimate the gaps in future spending to achieve the 2030 sustainable agenda. This preliminary research study is intended to give a brief overview of the current status on key targets of social sector related SDGs and recommend the polices regarding the need of mobilization of financial resources and significant investments in important areas which have been analyzed in this report. Furthermore, the untiring efforts of research team may help government to truly embark on the journey to achieve the SDGs by 2030.

Dr. Mumtaz Anwar
Director PERI
A major research project like this is never alone work of anyone. The contributions of many different people and departments in different ways, make a project successful. The authors would especially like to acknowledge the cooperation of the Social Sector Departments of the Punjab Government. We would like to thank our research staff who have helped and obtained required information/data from relevant government departments. We would like to acknowledge the support provided by our colleagues and helped us out with their abilities.

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Acronyms

BISP  Benazir Income Support Programme
CAGR  Compound Annual Growth Rate
CPI  Consumer Price Index
FY  Fiscal Years
GDP  Gross Domestic Product
JMP  Joint Monitoring Programme
LFS  Labor Force Survey
LG&CD  Local Government and Community Development
MDGs  Millennium Development Goals
MICS  Multiple Indicator Cluster Survey
MPI  Multidimensional Poverty Index
OPHI  Oxford Poverty & Human Development Initiative
PCRWR  Pakistan Council of Research in Water Resources
PHED  Punjab Health Engineering Department
PILDAT  Pakistan Institute of Legislative Development & Transparency
PKR  Pakistani Rupees
PMN  Pakistan Microfinance Network
PSLM  Pakistan social & Living Standard Measurement
SDGs  Sustainable Development Goals
SPDC  Social Policy and Development Centre
UNCTAD  UN Conference on Trade and Development
UNDP  United Nations Development Programme
UNESCO  United Nations Educational, Scientific and Cultural Organization
WASH  Water, Sanitation and Hygiene
WHO  World Health Organization
WPI  Wholesale Price Index
# Table of Contents

About Punjab Economic Research Institute iii  
Foreword iv  
Acknowledgement v  
Acronyms vi  
Executive Summary 1  
Chapter 1 3  
1.0 Introduction 5  
1.1. Role of SDGs in Punjab 8  
1.2. Lessons learned from MDGs 9  
1.3. Research Design 10  
1.4. Limitation of the Study 12  
1.5. Schemes of the Chapters 12  
Chapter 2 13  
Goal 1 15  
No Poverty 15  
  2.0 Introduction 15  
  2.1. Punjab’s Performance to Achieve MDG1 16  
  2.2. SDGs Targets of Poverty 17  
  2.3. Research Focus and Objectives 19  
  2.4. Conclusion 24  
  2.5. Way forward 24  
Chapter 3 25  
Goal 3 27  
Good Health and Well Being 27  
  3.0 Introduction 27  
  3.1. Punjab Performance to Achieve Health MDGS 29  
  3.2. SDGs Targets of Health 30  
  3.3. Research Focus and Objectives 30  
  3.4. Conclusion 34  
  3.5. Way forward 35  
Chapter 4 37  
Goal 4 39  
Quality Education 39  
  4.0 Introduction 39
List of Figures

Figure 1.1: Sustainable Development Goals 6
Figure 2.1: Poverty Headcount 2004-15 16
Figure 2.2: Intensity and Headcount of Multidimensional Poverty Index in Punjab, 2004-15 17
Figure 2.3: Total Nominal Expenditures to Reduce Poverty (in Millions) 19
Figure 2.4: Total Expenditures Required and Trend of Current Spending to Reduce Poverty 23
Figure 3.1: Development Allocation/Spending as percentage to Total Allocation/Spending 29
Figure 3.2: Future Gap in Spending 34
Figure 3.3: Future Projection of Allocations in Health sector 35
Figure 4.1: Growth of Literacy Rate in Punjab 44
Figure 4.2: School Education Budget as % of Total Education Allocations 40
Figure 4.3: Total Expenditures (Billion) on School Education in Punjab 41
Figure 4.4: Net Primary Enrollment in Punjab 42
Figure 4.5: Projected Trend of Allocation in School Education 47
Figure 5.1: JMP Ladder for Drinking Water Services 53
Figure 5.2: JMP Ladder for Sanitation Services 53
Figure 5.3: Population Access to Improved Water and Sanitation in Punjab 54
Figure 5.4: Households by Type of Hygiene Availability and Type of Toilet 56
Figure 5.5: Source of Drinking Water 56
Figure 5.6: Safely Managed Water 57
Figure 5.7: Safely Managed Sanitation in Punjab 59
Figure 5.8: Under 5 Mortality Rates in Punjab 61
Figure 5.9: Gap in Spending (in Million) 67

List of Tables

Table 1.1: Performance of Punjab in MDGs 10
Table 2.1: Indicators & Targets of SDGs 20
Table 2.2: Indicators of MPI and Relative Weights 21
Table 2.3: Population below Poverty and Per Capita Pro-poor Public Spending 22
Table 2.4: Gap in Spending 23
Table 3.1: Health Indicators in Punjab 28
Table 3.2: Total Allocation vs Spending in Health Sector 28
Table 3.3: Punjab Performance to Achieve Health MDGs 30
Table 3.4: Per Capita Nominal & Real Spending in Health Sector 32
Table 3.5: Gap in Spending 33
Table 4.1: Total Allocation vs Spending in School Education 40
Table 4.2: % of Children Attended & Unattended the School 41
Table 4.3: Public Expenditures on Education 44
Table 4.4: Projected Public Expenditures 46
Table 5.1: JMP Interpretation for SDG Targets 6.1 & 6.2 46
Table 5.2: Service Level Definition of SDG Target 6.1 52
Table 5.3: Service Level Definition of SDG Target 6.2 52
Table 5.4: Safely Managed Water Services 58
Table 5.5: Safely Managed Sanitation Services 59
Table 5.6: Water and Sanitation Access Across Provinces of Pakistan 60
Table 5.7: Water and Sanitation Access in the South Asian Region 60
Table 5.8: Available Data on Public Expenditure on Water Supply 66
Table 5.9: Estimation of Finance required for Water Services, 2017-30 67
Table 5.10: Available Data on Public Expenditure on Sanitation 68
Table 5.11: Estimation of finance required & Gap for Sanitation, 2017-30 68
The global post-15 development agenda espousing the 17 sustainable development goals, provides a monumental opportunity to Pakistan as its federation and provinces, particularly Punjab, can fully realize the goal of eradicating poverty to help ensuring dignity for all citizens.

While Pakistan, as a whole couldn’t fulfill the Millennium Development Goals by 2015, primarily due to the lackluster governance and inordinate financial constraint, the performance of Punjab, which was exceptional on 6 of the 25 MDGs, was relatively better than the other provinces. The Sustainable Development Goals (SDGs), as they are envisioned, are quite ambitious, as they required substantial financial resources to realize them.

Thus, the availability and efficient allocation of financial resources are crucial to achieve the SDGs. Therefore, the primary objective of this report is to evaluate the financial capacity of Punjab government to meet the global development agenda. For this purpose, the study appraises the trajectory of financial resources devoted to the social sector from 2010 to 2017. On the basis of the current trends, the financial resources needed to augment different arenas in the social sector, like poverty, education, health and WASH, have also been identified. The pertinent to relevant government policies and programs designed in alignment with the 2030 sustainable development goals, is also highlighted.

The study results illustrate that if the budget allocation in social sector is akin to previous trend then, on average, PKR 7484 billion public spending will be required to attain the SDG indicator 1.2.2 of, halving poverty, PKR 5318 billion shall be needed to achieve the all targets of health SDG 3, PKR 393 billion will be required to meet the education target of SDG 4.1, PKR 201 billion should be devoted to safe drinking water services SDG target 6.1 and PKR 320 billion should be allocated on sanitation facilities SDG target 6.2 till 2030.

As, this study comprises the appraisal of only 4 goals, 13 targets and some specific indicators of these goals, which are integral to global sustainable development agenda for 2030, it should be envisioned only as a preliminary and foundation exercise providing austere estimates; the actual finances required to achieve the post-2015 sustainable development agenda.
The Sustainable Development Goals

“Despite substantial attainments in many of MDG targets, development is found irregular across countries and regions. So, in SDGs, every person and organization are striving to prevent environmental calamities, economic differences, violation of human rights, sub-par education and healthcare to the best of their abilities.”
1.0 INTRODUCTION

The rapid increase in globalization has induced the policy makers to concentrate on collaborative efforts in a way to establish a common set of goals which reflect the interest of all partner countries at large. Different forms of global governance have appeared as a prominent feature to set and derive the global development agenda. Although the Millennium Development Goals (MDGs), adopted by civil societies, international organization and 193 collaborative countries, were set with the intention to find a way towards accomplishing certain development indicators since 2015. The evaluation reports of MDGs indicators (UN, 2015) illustrate that despite substantial attainments in many of MDG targets, development is found irregular across countries and regions which reflects significant gaps. Lots of people in poor and even developing countries like Pakistan are not benefited accordingly, specifically the poorest and those deprived because of their region, sex, age, sect and ethnicity etc.

Due to failure to achieve most of the targets of MDGs, targeted efforts were needed to reach the most vulnerable people. In compliance the world has now been moved from MDGs to Sustainable Development Goals (SDGs) which are a new set of goals, accepted by the UN General Assembly in September 2015. There are 17 goals and 169 targets in SDGs intended to be achieved by 2030.
The post-15 sustainable development agenda has broader scope compared to MDGs. SDGs mainly comprise of three dimension\(^1\) of social, economic and environmental and cover all spectrums such as social protection, climate resilience, infrastructure, labor market, advance technologies, trade, governance and many other. Furthermore, it’s expected that SGDs’ targets will change the governance model specifically at the national and local level. However, a three-dimensional approach of SGDs is actually a challenge for many national and international communi-

\(\text{FIGURE 1.1} \quad \text{The Sustainable Development Goals}
\)

Resource management and financial stress is one of the important determinant to achieve the targets of SDGs in developing countries like Pakistan.

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3 Dimensions of the SDGs

<table>
<thead>
<tr>
<th>Social</th>
<th>Economic</th>
<th>Environmental</th>
</tr>
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Source: http://www.stakeholderforum.org
ties, which have usually been planned to achieve mono-dimensional targets e.g. health and education etc. In the case of Pakistan, the government has aligned its development plans e.g. vision 2025 with SDGs to increase economic growth, meet global sustainable development agenda and give social protection to all. (Salik, 2016).

First goal of SDGs, “end poverty in all its forms”, encompasses components from all three dimensions (social, economic and environmental) of global sustainable development agenda. Although, main focus of goal 1 is on the social dimension, it is less focused on the other elements of the other dimensions. Third goal of post-15 sustainable development agenda is to, “ensure healthy lives and promote well-being”, also concentrates on the social dimension. At this time, the economic and environmental dimension is missing in this goal 3 of SDGs. Likewise, goal 4 of SDGs, “ensure inclusive and equitable quality education”, contains elements from all three dimensions but more attention of this goal is towards the social dimension as compared to the other dimensions. Goal 6, “ensure availability of WASH”, encompasses environmental and social elements but can be improved by adding targets or elements from economic dimension. (Cutter, Osborn, Romano, & Ullah, 2015).

Budgets, finance or public spending are essential for achieving the SDGs targets, as it’s very hard to meet the sustainable goals. Government spending is indicative of its commitment to the SDGs. Financial analysis on governments’ total allocation and expenditures provides information about whether the government’s financial expenditure is sufficient to meet the global sustainable development agenda and track its progress in achieving the national framework on budget expenditures. Meanwhile, transparency and accountability regarding public spending is very crucial to achieve the economic progress and global 2030-development agenda. (International Budget Partnership, 2017) The financial analysis done by Oxfam and Development Finance International on government spending reveals that SDGs require more financing than the MDGs. Therefore, there is a need to improve the resource utilization through sectoral spending. This report also highlights the trends of public spending in developing countries on MDGs and shows that, revenue generation is very important to boost national economy and create balance between revenue generation and public expenditures to avoid budget deficit. This was not the case in 2012-14 when government spending increased hastily as compared to revenues due to which there was increase in debt services of developing countries. As a result, MDGs spending did not rise to the equal wave-length as total government spending. (Martin & Walker, 2015).

The significance of financial requirements for SDGs cannot be ignored but there is a greater need to use the available resources effectively and efficiently. (The World Bank Group, 2013). A well-performing government administration must build an effective public financial management and delivers quality public services and bring up economic growth while managing fiscal resources carefully to alleviate poverty and the achievement of the Sustainable development goals.

Development economists and development experts agree that to make economic development sustainable, Pakistan must focus the efficient use of resources. Human capital development is the most important aspect in new development goals. Furthermore, the institutional development has also been identified as an important contributor in most of the SDGs. Effective and efficient governance in the public-sector boosts for better decision making and use of resources to achieve the desired targets.
Both are the important indicators of ‘Good Governance’. Therefore, researchers and economists in the development field have increasingly turned their attention to reform the social institutions in order to promote the element of good governance so that the education and health facilities can be effectively provided and meanwhile to reduce the income poverty gap. The research study also emphasizes that there is need for extraordinary improvement or advancement particularly in social sector; education, WASH, health, infrastructure development, security, nutrition and environmental dimensions to implement the 2030 sustainable development agenda. For this purpose, adequate financial and technological resources are required. It has been claimed that financial challenge to achieve SDGs is a mammoth task. Moreover, effective use of a varied range of financial resources is crucial in developing countries which neither have sufficient financial resources nor the aptitude to use them effectively. (Hurley & Voituriez, 2016).

### 1.1. ROLE OF SDGS IN PUNJAB

Punjab government has realized the importance of universal agenda of SDGs for the growth and development of the province. Therefore, it has decided to align Punjab’s development plans and resources with SDGs to achieve its targets and to meet government’s own priorities of quality education, good health, equal access to improved water and sanitation services, employment opportunities, elimination of poverty, food and energy security and economic growth etc. For this purpose, SDGs support unit has been established by the government of Punjab with the collaboration of UNDP and Planning Commission of Pakistan. This support unit is supposed to provide technical assistance to government of Punjab through evidence base analysis and give advice or recommendations to formulate the provincial polices in the perspective of SDGs with the special emphasis on disparity issues. Moreover, the post 2015 UN development agenda gives framework to national and provincial establishments to refurbish their efforts and assimilate their ambitions to meet sustainable development targets in a well-defined timeline.

Punjab government has taken drastic steps to enhance the social sector in Punjab. Punjab growth strategy mainly focused on health, education, job creation and skill development, poverty reduction and energy sector. Due to increasing focus of government on social sector, allocations have been increasing by 32% in social sector during the financial year 2016-17. (P & D, 2016).

#### 1.1.1. Punjab Growth Strategy and SDGs

**Achieving Social Outcomes and Improving Human Capital**

- The Government will focus on demand-side interventions to increase the demand for education amongst the poor and vulnerable groups.
- It is also critical to ensure that students remain in school beyond primary level, because the economic benefits of education are positively related to the number of years of schooling.
- The Government will dedicate significant resources to reducing infant and maternal mortality
Chapter 1: Introduction

Identification of Financial Requirements to Achieve the SDGs in Punjab

1.2. LESSONS LEARNED FROM MDGS

1.2.1. Millennium Development Goals 2000-15

Pakistan was unable to achieve the MDGs, underperforming on 25 out of 33 indicators. Moreover, Pakistan’s progress on MDGs in the regional context was not satisfactory as it had only met four targets as compared to other countries. There were several reasons for this failure, including lack of political will, weak institutional capacity, financial constraints, flawed policies, lack of coordination and monitoring mechanisms, and human resource constraints. Pakistan adopted 16 targets and 41 indicators of MDGs and failed to achieve 24 indicators against eight millennium development goals.

The province of Punjab is unlikely to achieve MDGs in their entirety by 2015 since progress shows wide better than the national average. Subsequently, Punjab has performed only in 6 indicators out of 25 MDG indicators.

In Punjab, the system of good governance has generally not been satisfactory. In fact, bad governance has been one of the main barriers to the achievement of MDGs in Pakistan (Ministry of Planning, 2013). MDGs attainment in Punjab is not very impressive as indicated in Table 1.1. The launching of SDGs in Punjab provides an opportunity to go beyond the Millennium Development Goals, the centrality of governance in sustainable development has been emphasized repeatedly in these goals. Punjab government fully supports the SDGs and is doing efforts to align its resources for the achievement of these goals because finance is a key element to fruitfully deliver the SDGs. According to United Nation Conference on Trade and Development (UNCTAD) (Zhan, 2015), global investments required for the implementation of SDGs is in the range of $5
The financial investment required for developing countries is estimated to be about $3.9 trillion a year for basic infrastructure. But, the existing levels of investment in public and private sectors is $1.4 trillion. Consequently, there may be an annual financing gap of $2.5 trillion.\textsuperscript{4}

The same type of analysis to investigate the gap between current and required level of investment to implement the SDGs is somehow needed to be done in Punjab. The question is by who and how?

### 1.3. RESEARCH DESIGN

In context of the government effectiveness which is the third indicator of good governance, it is vital to understand that the budgetary utilization in social sectors which is the potential factor and also the important mechanism to implement the social agenda of the SDGs, especially if the stakeholders want to make Punjab government responsible for its implementation. To analyze the public spending trends and future requirements to achieve SDGs, this
research design has been set as follows:

1.3.1. Methodology

UNDP has provided a sound indicator framework to convert the SDGs into a development tool. So that, it can be helpful for the partner countries to establish and implement their policies to achieve the desired targets. Additionally, the indicators will provide help to identify the implementation cost of certain goals by tracing-out the progress with actual expenses. The methodology to estimate the requirement and to identify the gaps in financing for SDGs is entirely based on the study conducted in India titled “Achieving SDGs in India: A study of India’s financial requirements and gaps” supported by UNDP. The methodology to measure each social sector related indicator is discussed in detail in each relevant chapter.

To view and observe the trends in government’s budget allocation and spending, the Compound Annual Growth Rates (CAGR) are used in this study. Future population of Punjab is projected by using the CAGR of the population between 1998 and 2017, as found in census 2017. To measure the population of sub age groups (such as the between 5-14), the share of age wise population has been taken from PSLM and is projected for next years by using the CAGR of that sub-group of the population. To adjust finances for inflation, Wholesale Price Index (WPI) has been used.

1.3.2. Research Objectives

Punjab is the most populous province of Pakistan with more than 10 million of population. For this reason, it would be stimulating to analyze the level and effect of good governance in the process of financial resource management to meet SDGs at the level of the public institutes in Punjab. Therefore, the present study is intended to review the public spending trends in social sector in the province of Punjab as primary basis of finances that are available for social sector development. Gap is derived by comparing finance required to finance availability to achieve SDGs.

In this context, this study aims to evaluate:

- the current trend of allocations & spending in each of the selected social sector (health, education, water & sanitation and poverty) related to SDGs.
- To identify the total finance required and to estimate the financial gaps to achieve the selected social sector related SDGs indicators.
- To give recommendations for improvement in the financial resource management system of social sector organizations to meet SDGs so as to ensure quality public services deliver in Punjab.

1.3.3. Sample Selection

Punjab is facing some financial constrains in the implementation of social sector goals. Due to the largest challenges, an implementation of the SDGs require financial commitments and consideration of the potential economic pressure.

To answer the question to what extent Punjab is able to attain the social sector development by the implementation of the SDGs, it is crucial to choose a representative sample from the social sector in the Punjab. This study will investigate in detail the three-social sector (education, health and Income Poverty) in Punjab. These public institutions are specifically selected because education and health are the most desired requirements for quality of human
capital. Moreover, income is the main determinant of education and health. Thus, focus should be on these three segments.

The gap for each category is estimated via the technique used by (Bhamra, Shanker, & Niazi, 2015). This technique is very useful for comparison and better understanding of a public institutions’ performance on the social development indicators of the SDGs.

1.3.4. Data Source

The data used in this study has been collected from different sources, such as from respective departments; education, health, social welfare & Bait-ul-mal and Zakat & Ushar, current and development budget data for social sector and publicly verified government surveys. The later include, but are not limited to publications like Pakistan Labor Force Survey (LFS), Pakistan Social and Living Standard Measurement Survey (PSLM), Multiple Indicator Cluster Survey (MICS) and Pakistan Economic Survey, Pakistan Institute of Legislative Development and Transparency (PILDAT).

1.4

LIMITATION OF THE STUDY

For convenience and shortage of time and data, this study has analyzed some specific indicators of social sector related to SDGs. The budget allocation and spending for education, health, water and sanitation, figure out in this study includes only for post devolution period such as 2010-11 to 2016-17. This study should be considered as an initial step towards very difficult procedure and needs more detailed analysis.

1.5.

SCHEMES OF THE CHAPTERS

This study consists of 6 main chapters, Chapter 1 gives the brief review of literature. Chapter 2 consists of the analysis of finding the financial gap in poverty related SDGs. An analysis of the gap in financial requirements in education related SDGs is given in chapter 4. Thorough analysis of health sector related SDGs requirement of finance and gap in financial resources is discussed in chapter 3. The financial resources required for provision of safe water supply and sanitation services is discussed in chapter 5.

Each of the chapter starts with the brief discussion of the sectoral allocation and spending trends and its main outcomes. Before going deeper into the ways to identify the financial gap in these goals and the current state of all indicators in respective sectors and economic performance is discussed.
GOAL 1

No Poverty

31.4 %
Population in Punjab is multidimensionally poor, which reflect that about 3 out 10 people in Punjab live in poverty.

43.7 %
Rural Poverty has typically been higher in Punjab as compared to Urban Poverty.
THE GLOBAL GOALS
For Sustainable Development

1. No Poverty
2. Zero Hunger
3. Good Health and Well-being
4. Quality Education
5. Gender Equality
6. Clean Water and Sanitation
7. Affordable and Clean Energy
8. Decent Work and Economic Growth
9. Industry, Innovation, and Infrastructure
10. Reduced Inequalities
11. Sustainable Cities and Communities
12. Responsible Consumption and Production
13. Climate Action
14. Life Below Water
15. Life on Land
16. Peace, Justice, and Strong Institutions
17. Partnerships for the Goals
INTRODUCTION

Punjab is home to almost half of the population of the country which can be considered to be both its asset as well as a strain on its common resources. The per capita income of Pakistan (as well as in Punjab) stands at Rs. 153,060 at Market Price (Punjab Development Statistics, 2016). This per capita has consistently risen over the years from Rs. 128,968 at Market Price to the level in 2014-15. Punjab has consequently performed better as compared to other provinces with regards to the prevalence of poverty.

Poverty reduction and equitable income creation are inherently desirable principles, which are also enshrined in the Sustainable Development Goals (SDGs).

These principles go hand in hand because poverty alleviation entails not only an increase in the size of the pie through GDP growth rate but also a redistribution of income from the haves to the have nots. Rural Poverty has typically been higher in Punjab as compared to Urban Poverty. Arriving at a national poverty line is marred with challenges because there is always a danger of having an urban bias due to the use of CPI, and not capturing the socio-economic changes that are taking place in society. Poverty is, therefore, a concept that has undergone significant revisions over the years. In the Millennium Development Goals (MDGs), poverty was taken to be synonymous to income poverty or the proportion of the population living below $1.25 per day. By 2015, this concept had evolved into Multidimensional Poverty or a measure of the deprivation that an individual experiences with regards to

The SDGs:

**GOAL 1: NO POVERTY**

Measure of Income-poverty in MDGs were marred with challenges, not captured the socio-economic changes that are taking place in society, so evolved the concept of Multidimensional Poverty in SDGs.
education, health and standard of living. Thus, poverty took on a multi-faceted approach similar to Amartya Sen’s concept of “capabilities.”

Punjab’s performance with regards to Poverty reduction can be seen in Figure 2.1. The Poverty Headcount dropped from 49.7 percent in 2004-5 to 31.4 percent in 2014-15. The intensity of Poverty (Fig. 2.2) similarly declined from 51 percent in 2004-5 to 48.4 percent in 2014-15. The overall MPI improved from 0.254 in 2004-5 to 0.152 in 2014-15.

While public financing has an indelible link with poverty reduction strategies, it is imperative that expenditures are utilized efficiently, effectively, and transparently in order to achieve the optimal results. Poverty reduction strategies focus on the redistribution aspect of poverty alleviation strategies and are essential especially during times of stagnating GDP growth rate. Figure 2.3 below details the nominal public expenditures over the years which have consistently increased from Rs. 156,904 million in 2006-7 to Rs. 949413 million in 2015-16. This is testament to the Government of Punjab’s commitment to poverty reduction which is also reflected in direct cash transfer schemes like the Benazir Income Support Program (BISP).

2.1. PUNJAB’S PERFORMANCE TO ACHIEVE MDG1

As per Millennium Development Goal (MDG) 1, Pakistan aimed to, “halve by 2015, the proportion of people living below the poverty line, achieve full and productive employment and decent work for all, and halve the proportion of people who suffer from hunger.” The first indicator in this regard was the Headcount Index also known as the Incidence of Poverty which was measured in terms of the official poverty line set at a monetary value, per capita per month, that would help attain 2350 calories per adult equivalent per day.

Consistently increase in spending on poverty reduction schemes reflect the Government of Punjab’s commitment to poverty alleviation which is also reflected in direct cash transfer schemes like the Benazir Income Support Program (BISP).

Pakistan Microfinance Network (PMN) reported the Headcount Index ranged from 5.5 percent to 25 percent across agro-climatic zones of Punjab.
The Government of Punjab expressed its commitment to achieve the Poverty indicator of the MDG in its Punjab’s Poverty Reduction Strategy Papers (PRSP) 2003. Due to insufficient data, the Headcount Index in Punjab available in snapshots for the year 2001-02 measured by Social Policy and Development Center (SPDC) and year 2005-06 measured by Pakistan Microfinance Network (PMN), respectively. The SPDC had estimated this incidence of poverty using an income poverty line of Rs. 646 per capita per month (Rs. 605 for rural areas and Rs. 761 for urban areas) which was in accord with achieving the minimum caloric requirement, and basic necessities such as clothing, education, and healthcare. The PMN had measured income poverty across the agro-climatic zones of Punjab using a poverty line of Rs. 944.47 per adult equivalent per month for 2004/5. According to the report, the index stood at 26 percent in 2001-02 and

2.2. SDGS TARGETS OF POVERTY

SDG Goal 1 aims to, “End poverty in all its forms everywhere.” Specifically, indicator 1.2.2 of this Goal aims to “reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national

in 2005-06 the Headcount Index ranged from 5.5 percent to 25 percent across agro-climatic zones of Punjab.

The UNDP report on MDG’s in Punjab reports erratic performance in the province with regards to the first indicator of the headcount index. Although, the headcount index in Punjab was lower than the national average (22.3 percent), it remained unlikely that Punjab would bring about a sufficient decline in its poverty to meet this target especially with the slowdown in the GDP growth rate since 2007 (UNDP, 2011).
Chapter 1: Introduction

Identification of Financial Requirements to Achieve the SDGs in Punjab

definitions by 2030.” Details of SDG 1 targets and its indicators can be found in Table 2.1 below. Pakistan’s Vision 2025 also defines Poverty as a, “multidimensional phenomenon and is described as a lack of income or consumption and access to education, health and other amenities of life.”

Multidimensional Poverty Index (MPI) is a composite index that captures severe deprivations that an individual experiences with regards to three dimen-

Some Public-Sector Initiatives Related to Poverty Reduction in Punjab

- Disbursement of amount Rs 0.41 billion in student stipends, 1.09 billion in Jahez fund, 0.75 billion in scholarship by the Auqaf department in last six years.
- Spending of Rs 13 billion in 2015-16 and Rs 18 billion in 2016-17 on educational attainment of deserving children at school level by Punjab Education Foundation.
- Spending of Rs 4 billion for education attainment at all tier by Punjab Education Endowment Fund.
- Allocation of PKR 1 billion for cash transfers to disabled elderly individuals under Punjab Social Protection Authority.
- Spending of Rs 0.488 billion in 2015-16 on pro-poor schemes in livestock department.
- Health insurance scheme for poor families at a cost of PKR 2 billion.
- Allocation and Spending of Rs 10 billion in wheat subsidy program by food department.
- Disbursement of Rs 0.67 billion by Punjab Bait ul Mal in educational stipend, marriage grants, medical treatment, and financial assistance to destitute and disabled.
- Spending of Rs 2.006 billion by Punjab Small Industries Corporation to support a multitude of programs targeted the empowerment of women and other self-employment schemes.
- Four public sector projects against child labour are underway in Punjab for which over Rs 870 million have been released in 2016.
- Spending of 1.114 billion on southern Punjab poverty alleviation project.
- Provision of PKR 2 billion to Akhuwat for interest free loans under ‘Khud Rozgar’ / Self Employment Scheme. The total allocation is now PKR 10 billion. However, total loaning due to revolving nature of the fund is in the region of PKR 30 billion with over 1,450,000 beneficiaries.
- Rs100bn were earmarked in 2016-17 under the Khadim e Punjab Kissan Package for kissan empowerment through a Digital and Financial Inclusion scheme of interest-free loans.
- Distribution of 50,000 vehicles under ‘Apna Rozgar Scheme’ through a transparent process.
- 6,400 flats for lower income families under Ashiana-e-Iqbal scheme in Lahore.
- Establishment of child protection institutes in Dera Ghazi Khan, Bahawalnagar and Sahiwal.
- A 120-bed maternity and child health center for laborers in Faisalabad.
- A 50-bed social security hospital in Jhang.
- Establishment of Women Shelter Homes (Dar-ul-Aman), Mother & Children Homes (Dar-ul-Falah), Socio-Economic & Rehabilitation Center (SERC) for Women and Juvenile Prisoners, Shaheed Benazir Bhutto Human Rights Centers for Women (Crisis Centers), Old Age Homes (Aafiya), Abandoned Babies Homes (Gehwara), Model Children Homes (Orphanages), Home for Destitute Girls (Kashana), Centre for Lost Runaway & Kidnapped Children (Nigheban) by social welfare department.
- 110 Medical Social Services Projects working at national level hospitals DHQs and THQs in the Punjab.
- Khidmat Card for People with disabilities (P WDs), Rehabilitation of P WDs, CCT Schooling for Brick Kiln Children, CCT Secondary Schools Girls, CCT Nutrition by Punjab Social Protection Authority.
sions, namely, education, health, and standard of living. These three dimensions are further bifurcated into 15 indicators, detailed in Table 2.2 below in order of importance. The OPHI has measured this index by using the Pakistan Social and Living Standards Measurement (PSLM). It is computed as the product of two components, namely, (a) Incidence of Poverty (H) or the Poverty Headcount, measured as the percentage of people who are identified as multidimensionally poor; and (b) Intensity of Poverty (A) or the average percentage of dimensions in which poor people are deprived.

2.3. RESEARCH FOCUS AND OBJECTIVES

This chapter has a focus only on the public financing of poverty reduction schemes to achieve the SDGs indicator 1.2.2 in Punjab with a specific focus on finding if there are any gaps in financing the proposed decline in poverty in all its dimensions as per national definition.

2.3.1. Research Questions

With the objectives described in above paragraph, this chapter will aim to answer the following research questions in this section:

a. How much budgetary spending is required to reduce at least half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions by 2030?

b. What is the gap between the budget required to achieve the SDG target on poverty reduction?

2.3.2. Methodology

The analysis in this chapter is quantitative in nature. The indicator 1.2.2 can be captured through Multidimensional Poverty where MPI is calculated as follows:

\[ MPI = H \times A \]

1) Incidence of Poverty (H): the percentage of people who are identified as multidimensionally poor, or the poverty headcount.

Pakistan’s Vision 2025 also defines Poverty as a, “multidimensional phenomenon and is described as a lack of income or consumption and access to education, health and other amenities of life. So, it is linked to SDGs targets.

Simple linear regression analysis has been applied to forecast the future requirement of finance to achieve SDGs by the World Bank in their report titled “Achieving SDGs in India: A Case Study of India’s Financial Requirements and Gaps.”
<table>
<thead>
<tr>
<th>Targets</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day.</td>
<td>1.1.1 Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural).</td>
</tr>
<tr>
<td>1.2 By 2030, reduce at least half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions.</td>
<td>1.2.1 Proportion of population living below the national poverty line, by sex and age.</td>
</tr>
<tr>
<td></td>
<td>1.2.2 Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions.</td>
</tr>
<tr>
<td>1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable.</td>
<td>1.3.1 Proportion of population covered by social protection floors/systems by sex, distinguishing children, unemployed persons, older persons, persons with disabilities, pregnant women, newborns, work-injury victims and the poor and the vulnerable.</td>
</tr>
<tr>
<td>1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property inheritance, natural resources, appropriate new technology and financial services, including microfinance.</td>
<td>1.4.1 Proportion of population living in households with access to basic services.</td>
</tr>
<tr>
<td></td>
<td>1.4.2 Proportion of total adult population with secure tenure rights to land, with legally recognized documentation and who perceive their rights to land as secure, by sex and by type of tenure.</td>
</tr>
<tr>
<td>1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.</td>
<td>1.5.1 Number of deaths, missing persons and persons affected by disaster per 100,000 people.</td>
</tr>
<tr>
<td></td>
<td>1.5.2 Direct disaster economic loss in relation to global Gross Domestic Product (GDP).</td>
</tr>
<tr>
<td></td>
<td>1.5.3 Number of countries with national and local disaster risk reduction strategies.</td>
</tr>
<tr>
<td>1.A Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programs and policies to end poverty in all its dimensions.</td>
<td>1.A.1 Proportion of resources allocated by the government directly to poverty reduction programs.</td>
</tr>
<tr>
<td></td>
<td>1.A.2 Proportion of total government spending on essential services (education, health and social protection).</td>
</tr>
<tr>
<td>1.B Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions.</td>
<td>1.B.1 Proportion of government recurrent and capital spending to sectors that disproportionately benefit women, the poor and vulnerable groups.</td>
</tr>
</tbody>
</table>

Source: UNDP
Chapter 1: Introduction

Identification of Financial Requirements to Achieve the SDGs in Punjab

2) Intensity of Poverty (A): the average percentage of dimensions in which poor are deprived.

**Source: Multidimensional Poverty Index, OPHI, 2015**

Simple linear regression, using the method of least square has been adopted to forecast the finance required to reduce at least half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions by 2030. The future budget expenditures have been measured by using the compound growth formula assuming that the past trends in public spending will be followed in the future as well. The gap is then calculated by subtracting the forecasted finance to the future trend of spending.

### 2.3.3. Data Sources

The data has been obtained from different sources such as the data on annual public expenditures on poverty reduction has been directly obtained from Poverty Reduction Strategy Papers (PRSP), Finance Department Pakistan whereas data on the Headcount Index, Intensity of Poverty and MPI has been extracted from the report, “Multidimensional Poverty in Pakistan,” published by the Oxford Poverty and Human Development Initiative (OPHI) and United Nations Development Program (UNDP), Pakistan.

The total nominal public expenditure to reduce poverty (in millions) was taken for the last ten years (2006-07 to 2015-16) see Table 2.3. It was divided by the Wholesale Price Index for the respective years (with 2007-08 as the base year) to arrive at Per Capita pro-poor expenditures have been increased from Rs 4099 in 2006-07 to 14127 in 2015-16 in Punjab. The high per capita targeted pro-poor spending has decreased the incidence of poverty from 46% to 31.4% between the period of last 10 years.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Percentage Contribution to 2014-15 MPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years of Schooling</td>
<td>29.7%</td>
</tr>
<tr>
<td>Access to Health Facilities</td>
<td>19.8%</td>
</tr>
<tr>
<td>Child school attendance</td>
<td>10.5%</td>
</tr>
<tr>
<td>Cooking fuel</td>
<td>8.5%</td>
</tr>
<tr>
<td>Assets</td>
<td>6.3%</td>
</tr>
<tr>
<td>Sanitation</td>
<td>5.3%</td>
</tr>
<tr>
<td>Land and Livestock</td>
<td>3.8%</td>
</tr>
<tr>
<td>Educational Quality</td>
<td>2.6%</td>
</tr>
<tr>
<td>Over crowding</td>
<td>2.6%</td>
</tr>
<tr>
<td>Full Immunization</td>
<td>2.2%</td>
</tr>
<tr>
<td>Ante-natal care</td>
<td>1.9%</td>
</tr>
<tr>
<td>Improved walls</td>
<td>1.9%</td>
</tr>
<tr>
<td>Assisted delivery</td>
<td>1.8%</td>
</tr>
<tr>
<td>Water</td>
<td>1.7%</td>
</tr>
<tr>
<td>Electricity</td>
<td>1.4%</td>
</tr>
</tbody>
</table>

Source: MPI Pakistan, 2015
Identification of Financial Requirements to Achieve the SDGs in Punjab

Chapter 1: Introduction

Identification of Financial Requirements to Achieve the SDGs in Punjab

22

the real public expenditure to reduce poverty (in millions). The total population living below the poverty line was measured using the MPI Poverty Rate and (or the Poverty Headcount) and multiplying it with the total population in the respective years. The per capita pro-poor expenditure was subsequently estimated by dividing the total real public expenditure to reduce poverty (in millions) by the total population living below the poverty line.

In order to achieve the SDG indicator 1.2.2 of halving poverty by the year 2030, MPI Poverty rate was set at 14 percent in the year 2030 and the population below poverty line was calculated. The future expenditures to reduce poverty were measured using a compound growth rate formula, assuming that expenditures would continue to grow with the same trend. The total expenditure required (in millions) to lift half the people (living below the poverty line) out of poverty were measured using a linear regression model. The details of the results can be found in Table 2.4 below.

The results indicate that the Government of Punjab is currently spending more than sufficient amount to take half the people (currently living in poverty) out of poverty. The poverty expenditures (in millions), if they continue growing at the same trend, will result in total expenditure of Rs. 11,947,408 Million by the year 2030. The total expenditure required (in millions) to lift the people out of poverty stands at Rs. 7,484,936 Million. This implies that there is a negative gap in expenditures of Rs. 4,462,472 or the government is spending more than what is required to lift half the people out of poverty.

The negative gap in spending reflects that if there would be fewer people below poverty line, the volume of budget the

<table>
<thead>
<tr>
<th>Period</th>
<th>Total Nominal Public Expenditures to Reduce Poverty (Rs Millions)</th>
<th>Total Real Public Expenditure to Reduce Poverty (Rs Millions) 2007-8=100, Price Index</th>
<th>MPI Poverty Rates (%)</th>
<th>Total Population</th>
<th>Total Population below Poverty Line (Rs Millions)</th>
<th>Total Population Poverty Line (Rs Millions)</th>
<th>Per Capita Pro-poor Expenditures (PKR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-07</td>
<td>156904</td>
<td>169260</td>
<td>46.4</td>
<td>88998648</td>
<td>88.998648</td>
<td>41.30</td>
<td>4099</td>
</tr>
<tr>
<td>2007-08</td>
<td>192919</td>
<td>192919</td>
<td>44.00</td>
<td>90894319</td>
<td>90.894319</td>
<td>39.99</td>
<td>4824</td>
</tr>
<tr>
<td>2008-09</td>
<td>302435</td>
<td>254297</td>
<td>43.20</td>
<td>92830368</td>
<td>92.830368</td>
<td>40.10</td>
<td>6341</td>
</tr>
<tr>
<td>2009-10</td>
<td>347590</td>
<td>256713</td>
<td>41.00</td>
<td>94807655</td>
<td>94.807655</td>
<td>38.87</td>
<td>6604</td>
</tr>
<tr>
<td>2010-11</td>
<td>367288</td>
<td>223724</td>
<td>38.10</td>
<td>96827058</td>
<td>96.827058</td>
<td>37.08</td>
<td>6033</td>
</tr>
<tr>
<td>2011-12</td>
<td>540944</td>
<td>298402</td>
<td>36.88</td>
<td>98889474</td>
<td>98.889474</td>
<td>36.66</td>
<td>8140</td>
</tr>
<tr>
<td>2012-13</td>
<td>623194</td>
<td>320227</td>
<td>34.70</td>
<td>100995820</td>
<td>100.995820</td>
<td>35.23</td>
<td>9091</td>
</tr>
<tr>
<td>2013-14</td>
<td>646085</td>
<td>306958</td>
<td>33.40</td>
<td>103147031</td>
<td>103.147031</td>
<td>34.63</td>
<td>8864</td>
</tr>
<tr>
<td>2014-15</td>
<td>747049</td>
<td>356077</td>
<td>31.40</td>
<td>105344063</td>
<td>105.344063</td>
<td>33.25</td>
<td>10710</td>
</tr>
<tr>
<td>2015-16</td>
<td>949413</td>
<td>458034</td>
<td>29.98</td>
<td>107587891</td>
<td>107.587891</td>
<td>32.42</td>
<td>14127</td>
</tr>
</tbody>
</table>

Source: Author’s Calculations Based on the Data Obtaining from PRSP Reports

The total expenditure required (in millions) to lift the people out of poverty stand at Rs. 7,484,936 Million.
## Table 2.4: Gap in Spending

<table>
<thead>
<tr>
<th>Period</th>
<th>Total Population Below Poverty Line (In Millions)</th>
<th>Per Capita Pro Poor Expenditures (PKR)</th>
<th>Total Expenditures Required (IN Millions)</th>
<th>Current Trend of Spending (In Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016-17</td>
<td>31.49</td>
<td>13327</td>
<td>419734</td>
<td>494529</td>
</tr>
<tr>
<td>2017-18</td>
<td>30.71</td>
<td>14301</td>
<td>439220</td>
<td>533932</td>
</tr>
<tr>
<td>2018-19</td>
<td>29.95</td>
<td>15299</td>
<td>458223</td>
<td>576475</td>
</tr>
<tr>
<td>2019-20</td>
<td>29.21</td>
<td>16323</td>
<td>476754</td>
<td>622407</td>
</tr>
<tr>
<td>2020-21</td>
<td>28.48</td>
<td>17373</td>
<td>494826</td>
<td>671999</td>
</tr>
<tr>
<td>2021-22</td>
<td>27.78</td>
<td>18450</td>
<td>512448</td>
<td>725542</td>
</tr>
<tr>
<td>2022-23</td>
<td>27.09</td>
<td>19554</td>
<td>529634</td>
<td>783352</td>
</tr>
<tr>
<td>2023-24</td>
<td>26.41</td>
<td>20686</td>
<td>546392</td>
<td>845767</td>
</tr>
<tr>
<td>2024-25</td>
<td>25.76</td>
<td>21847</td>
<td>562735</td>
<td>913156</td>
</tr>
<tr>
<td>2025-26</td>
<td>25.12</td>
<td>23038</td>
<td>578673</td>
<td>985914</td>
</tr>
<tr>
<td>2026-27</td>
<td>24.50</td>
<td>24258</td>
<td>594214</td>
<td>1064470</td>
</tr>
<tr>
<td>2027-28</td>
<td>23.89</td>
<td>25510</td>
<td>609370</td>
<td>1149284</td>
</tr>
<tr>
<td>2028-29</td>
<td>23.29</td>
<td>26794</td>
<td>624150</td>
<td>1240856</td>
</tr>
<tr>
<td>2029-30</td>
<td>22.72</td>
<td>28111</td>
<td>638563</td>
<td>1339725</td>
</tr>
<tr>
<td>Total</td>
<td>7484936</td>
<td></td>
<td>11947408</td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s Calculations Based on the Data Obtaining from PRSP Reports

## Figure 2.4: Total Expenditures Required and Trend of Current Spending to Reduce Poverty

![Graph](image)

Source: Author’s Calculations
2.4. CONCLUSION

The above discussion shows that Government policies cut the number of poor in Punjab by 46.4% to 31.4% in last 10 years. The government has made vast strides in reducing the incidence and intensity of poverty through anti-poverty programs, including various forms of cash assistance, nutrition and housing assistance and social security nets etc. About half of population among poor people is expected to lift out of poverty if government spent PKR 7,484,936 Million on poor.

2.5. WAY FORWARD

The expressed concerns of government and the plenty of programs and policies that have bearing on poverty, has reduced the poverty over the years. The current trend in spending on pro poor interventions are more than enough to lift half of the population of poor people to poverty. So, there is a chance to make a meaningful dent on poverty schemes spending, the poverty reduction programs are required to be implemented within the framework of rapid economic growth with equity, controlled population growth, to create jobs and skills among youth, sound economic management, and good governance etc.
Good Health and Well Being

14%  
Share of health spending in total provincial spending in 2015-16

66  
Life expectancy of birth is measured as 66 years in Punjab, lowest in all South Asian countries
INTRODUCTION

After the 18th Amendment in the Constitution of Pakistan, health was made a provincial subject. Therefore, the Government of Punjab has over the years introduced a number of health initiatives to improve not only health services but to also make health care easily accessible. These measures are being taken at the primary, secondary and tertiary level. In order to improve service delivery, Government of Punjab bifurcated Health Department into two separate departments; (i) Specialized Health Care and Medical Education Department and (ii) Primary and Secondary Healthcare Department in FY 2016-17. As far as the functional classification of Health Services is concerned, it includes allocation for hospitals, healthcare Institutes, laboratories and other expenditure related to health administration, including the general administration. The overall allocation for Health Sector (in the current budget at provincial level) has increased by 58.4% from Rs. 70,060.007 million during FY 2016-17 to Rs. 111,026.019 million for 2017-18.

Punjab, the most populous province, with 111 million of total population has a very important role in the attainment of national health goals. Among all health indicators of MDGs, Punjab was likely to achieve only one indicator.

Public health spending in Punjab has progressively increased over last seven years after devolution in nominal terms, from Rs. 15 billion in 2010-11 to Rs. 85 billion in 2015-16 while it has been reduced by Rs. 53 billion in 2016-17 (Table

The SDGs:

GOAL 3: GOOD HEALTH AND WELL-BEING

Despite a progressive increase in budgetary allocation in health sector by the government, the spending is still lowest in South-East Asia.
Development spending is one of the main heads of spending which constitute for 14 billion in 2016-17 health budget in nominal term.

3.2). While the increase in health expenditure is much less pronounced once inflation is taken into account, in real terms (constant 2007-08), health expenditure rose from Rs. 14 billion in 2010-11 to Rs. 41 billion in 2015-16, evidencing a substantial increase of 300 percent over the last seven years. The real expenditure has decreased around Rs. 17 billion in 2016-17. Underlying this movement of expenditures over the past seven years, the main development spending is one of the main heads of spending which constitute for Rs. 14 billion in 2016-17 health budget in nominal term. The higher rate of increase in the development and non-development allocation however does not actually translate into improved service delivery because a significant amount of allocated budget remained unspent (Table 3.2). In 2016-17, the total allocated budget to health sector was 118 billion while the spending was only Rs. 53 billion.

Moreover, the division of health budget of Punjab into development and current shows that over the past seven years...
3.1. PUNJAB PERFORMANCE TO ACHIEVE HEALTH MDGS

The task of achieving health goals of the MDGs were proven to be technically and operationally complex in context of Punjab. However, MDG post evaluation report by United Nation Development Program (UNDP) Pakistan first time made available a reliable and comparable set of provincial health statistics.

The information about health statistics was equally useful for both policy-making and advocacy purposes. But these statistics only reflect that Punjab was unlikely to achieve the specific targets of MDGs (Table 3.3). But it did suggest the key reasons of these failure. Experience suggests, however, that government was needed to maintain carefully the financial and other resources at both state and provincial level because the quantity and quality of services can be deliver more efficiently if resources are allocated and spend properly, particularly for the poor. ESCAP (2014) created an evidence in their policy brief that countries need to increase their efforts in order to achieve health and education related targets. They simply looked at the cross-country data on public expenditure and health and education related achievement indicators. They found the positive relationship between public education expenditure as a percentage of GDP and the literacy rate reflecting that the countries with higher public expenditure on education have achieved better outcomes. Similarly, the positive relationship was also witnessed between public health expenditure and life expectancy. A more rigorous study by the World Bank using multiple regression analysis and data from over 60 developing countries of the world finds statistically significant positive impact of public health expenditure on the reduction of child mortality. So, one of the element of failure to achieve health MDGs may be the low resource allocation.

Positive relationship has been observed between health spending and life expectancy by Economics and Social Commission for Asia and Pacific (ESCAP).
### 3.2. SDGs TARGETS OF HEALTH

“Healthy lives and well-being for all” is without doubt a global goal (SDG3), to make it more relevant by the continued emergence of new provincial health challenges and pandemics. Although, after devolution, the provincial government has introduced accelerated health innovation, but still there is devastating gaps in health outcomes between and within regions. Life expectancy varies drastically between rich and poor, healthcare is not universally accessible, and too many lives are cut short by preventable infectious and chronic diseases. Ensuring ‘health for all’ remains a persistent and entrenched provincial challenge. To measure the healthcare access to all, we have used life expectancy at birth as a proxy indicator for all health goals. Life expectancy at birth covers the all SDGs targets because it shows the overall health condition and mortality rate of the state/province. The same indicator has been used in India as a proxy indicator to measure the health-related SDGs Targets (3.1-3.9).

### 3.3. RESEARCH FOCUS AND OBJECTIVES

This section has a focus only on the public financing on all tier of health to achieve the SDGs 3 in Punjab with an objective to provide an evidence regarding the allocations and expenditure required in health sector to achieve the targets (3.1-3.9) of health SDGs. In both the Punjab Growth Strategy and Punjab Health Sector Strategy and SDGs as well have same focused to universal health care access to all.

---

**TABLE 3.3 Health Indicators in Punjab**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
<th>Status</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under five Mortality Rate (deaths per 1000 live births)</td>
<td>52</td>
<td>96</td>
<td>Off track</td>
</tr>
<tr>
<td>Infant Mortality Rate (Deaths per 1000 Live Births)</td>
<td>40</td>
<td>76</td>
<td>Off track</td>
</tr>
<tr>
<td>Proportion of Fully Immunized Children 12-23 Months</td>
<td>&gt;90</td>
<td>89</td>
<td>On track</td>
</tr>
<tr>
<td>Proportion of under 1-year children immunized against measles</td>
<td>&gt;90</td>
<td>87</td>
<td>Off track</td>
</tr>
<tr>
<td>Proportion of Children Under 5 Who Suffered from Diarrhea</td>
<td>&lt;10</td>
<td>9</td>
<td>Achieved</td>
</tr>
<tr>
<td>Lady Health Worker’s Coverage (percent of target population)</td>
<td>100</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>Maternal Mortality Ratio</td>
<td>140</td>
<td>160</td>
<td>Off track</td>
</tr>
<tr>
<td>Proportion of births attended by Skilled Birth Attendants</td>
<td>&gt;90</td>
<td>64.7</td>
<td>Off track</td>
</tr>
<tr>
<td>Contraceptive Prevalence Rate</td>
<td>55</td>
<td>38.7</td>
<td>Off track</td>
</tr>
<tr>
<td>Total Fertility Rate</td>
<td>2.1</td>
<td>3.5</td>
<td>Off track</td>
</tr>
<tr>
<td>Proportion of women 15-49 who had given birth during last 3 years and made at least one antenatal consultation</td>
<td>100</td>
<td>53</td>
<td>Off track</td>
</tr>
</tbody>
</table>

Source: Health Department Punjab

The provincial government has introduced accelerated health innovation, such as IMRNCN, TB Control, Hepatitis Control program, Revamping of THQ and DHQ hospitals etc.

Punjab Growth Strategy and Punjab Health Sector Strategy and SDGs as well have same focused to universal health care access to all.
confers can still be observed in the health of individuals and populations. Punjab is far away from targets of health indicators of SDGs such as the target is to reduce maternal mortality and infant mortality ratio up to 70/1000,000 and 12/1000 but in Punjab, it is about 160/1000,000 and 75/1000 respectively. To measure a universal access to health for all, this chapter uses the life expectancy of health as proxy indicator of health status of the population.

### 3.3.1. Research Questions
This section of the study will aim to answer the following research questions in
After devolution, health is the sole responsibility of the provincial bodies. They are now free to strategize, plan and act without federal dictation.

Nominal per capita real expenditures on health were highest in 2015-16 as PKR 787 while it has been decreased up to 483 in 2016-17.

This section:

a. What is the level of life expectancy index in Punjab?
b. How much budgetary spending are required to reach the desired level of life expectancy index?
c. What is the gap between the budget required to achieve the all targets (3.1-3.9) of health SDGs and current trend of spending on health sector in Punjab?

3.3.2. Limitation and Delimitation of the Study

To better access the trend of spending in health sector for the under-served populations, expenditure on healthcare services in the provincial Government is carried out by the Ministry of Finance of the Punjab only after devolution period. After devolution, health is the sole responsibility of the provincial bodies. Cut-off date for acquiring expenditure data for FY 2016-17 is 30th June 2017, meaning, data used also takes into account financial year-end adjustments.

3.3.3. Methodology and Process

Simple linear regression using the method of least square is used by taking life expectancy index as an independent variable and total public health spending as dependent variable. The life expectancy at birth and life expectancy index has been calculated by using the standardized formula used in Human Development Index by WHO. Life expectancy at birth reflects the overall mortality level of a population. It summarizes the mortality pattern that prevails across all age groups in a given year – children and adolescents, adults and the elderly and it is assumed that same age-specific mortalities will persist. Moreover, life expectancy index is globally used index to evaluate the health status of population of any country.

3.3.4. Data Sources

The data has been obtained from different sources such as the data on annual public expenditures on health sector has been directly obtained from respective office of finance department while to measure the life expectancy, the data on crude birth rates and crude death rates in seven consecutive years have been taken from Punjab Bureau of Statistics. The data of representative

<table>
<thead>
<tr>
<th>TABLE 3.4</th>
<th>Per Capita Nominal &amp; Real Spending in Health Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period</td>
<td>Total public expenditure on health</td>
</tr>
<tr>
<td>2010-11</td>
<td>23,424,036,107</td>
</tr>
<tr>
<td>2011-12</td>
<td>37,488,455,898</td>
</tr>
<tr>
<td>2012-13</td>
<td>46,520,577,548</td>
</tr>
<tr>
<td>2013-14</td>
<td>53,245,523,241</td>
</tr>
<tr>
<td>2014-15</td>
<td>63,744,846,439</td>
</tr>
<tr>
<td>2015-16</td>
<td>85,074,813,116</td>
</tr>
<tr>
<td>2016-17</td>
<td>53,143,731,030</td>
</tr>
</tbody>
</table>

Source: Author’s Calculations by using data of expenditures on health in Punjab
3.3.5. Results
In health sector, the budgetary allocation in year 2016-17 is not transferred into meaningful spending. In 2010-11, there was 32% budget remained unspent which is slightly increased by 55% in 2016-17. Nominal per capita real (Table 3.4) expenditures on health were highest in 2015-16 as PKR 787 while it has been decreased up to 483 in 2016-17. The growth rate of spending in last seven years was noticed as 13%. Per capita expenditures. It is evident the countries and states which have higher per capita public spending on health are well performed vs those who have lower per capita spending.

3.3.6. Estimation of Gap
Linear regression analysis by using the method of least square has been done by plotting the life expectancy index in consecutive years as dependent variable against the total real per capita public expenses as dependent variable. The regression coefficient was found $22456$ while the value of constant was $-16279$. The targeted life expectancy index is $0.90$ in 2029-2030. The future targeted value of each year is set in a way to increase gradually at the growth rate of $2.1\%$ so that to reach the targeted value in 2030. The required per capita expenditures to meet the targeted value of life expectancy index is forecasted (as highlighted in Table 3.5) by using regression results. The forecasted per capita expenditures are then multiplied by the projected population in

<table>
<thead>
<tr>
<th>Years</th>
<th>Total Population (Projected)</th>
<th>Total Real Per Capita Public Expenditures Required (Rs)</th>
<th>Expected Life Expectancy at Birth</th>
<th>Life Expectancy Index</th>
<th>Total Real Public Expenditures Required</th>
<th>Future Trend of Spending</th>
<th>Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017-18</td>
<td>112355707</td>
<td>672</td>
<td>66.6</td>
<td>0.69</td>
<td>75462</td>
<td>27083</td>
<td>48379</td>
</tr>
<tr>
<td>2018-19</td>
<td>114748883</td>
<td>1041</td>
<td>67.5</td>
<td>0.71</td>
<td>119465</td>
<td>30098</td>
<td>89366</td>
</tr>
<tr>
<td>2019-20</td>
<td>117193034</td>
<td>1419</td>
<td>68.4</td>
<td>0.72</td>
<td>166252</td>
<td>33450</td>
<td>132801</td>
</tr>
<tr>
<td>2020-21</td>
<td>119689246</td>
<td>1804</td>
<td>69.4</td>
<td>0.74</td>
<td>215962</td>
<td>37175</td>
<td>178787</td>
</tr>
<tr>
<td>2021-22</td>
<td>122238627</td>
<td>2199</td>
<td>70.3</td>
<td>0.76</td>
<td>268743</td>
<td>41315</td>
<td>227428</td>
</tr>
<tr>
<td>2022-23</td>
<td>124842310</td>
<td>2601</td>
<td>71.3</td>
<td>0.77</td>
<td>324746</td>
<td>45916</td>
<td>278831</td>
</tr>
<tr>
<td>2023-24</td>
<td>127501451</td>
<td>3013</td>
<td>72.3</td>
<td>0.79</td>
<td>384133</td>
<td>51029</td>
<td>333104</td>
</tr>
<tr>
<td>2024-25</td>
<td>130217232</td>
<td>3433</td>
<td>73.4</td>
<td>0.81</td>
<td>447070</td>
<td>56711</td>
<td>390359</td>
</tr>
<tr>
<td>2025-26</td>
<td>132990859</td>
<td>3863</td>
<td>74.4</td>
<td>0.82</td>
<td>513733</td>
<td>63027</td>
<td>450706</td>
</tr>
<tr>
<td>2026-27</td>
<td>135823564</td>
<td>4302</td>
<td>75.5</td>
<td>0.84</td>
<td>584304</td>
<td>70045</td>
<td>514259</td>
</tr>
<tr>
<td>2027-28</td>
<td>138716606</td>
<td>4751</td>
<td>76.6</td>
<td>0.86</td>
<td>658977</td>
<td>77845</td>
<td>581131</td>
</tr>
<tr>
<td>2028-29</td>
<td>141671270</td>
<td>5209</td>
<td>77.7</td>
<td>0.88</td>
<td>737950</td>
<td>86514</td>
<td>651436</td>
</tr>
<tr>
<td>2029-30</td>
<td>144688868</td>
<td>5677</td>
<td>78.9</td>
<td>0.9</td>
<td>821434</td>
<td>96148</td>
<td>725286</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5318229.95</td>
</tr>
</tbody>
</table>

Source: Author’s calculations

Population has been drawn from the census reports 1998 by which the population in the required years have been calculated on the basis of Punjab population growth rate witnessed as 2.13 in 2017 census.

There is an evidence that the district with higher per capita spending performs well vs the districts with low per capita spending in Punjab (WorldBank, 2013).

The gap of expenditures in nominal term would be PKR 6,546,166.19 Million or 117,230 Million US dollar.
each year to get the average real expenditures required to achieve the health SDGs. By assuming that spending in health will follow the same trend then the future projection of available financial resources has been projected (Table 3.5), which shows that on average there will be PKR 716,355 Million available to spend in all next 13 years. But the spending required to achieve the targeted level of life expectancy index is PKR 5,318,229 Million on average. By summing up the gap in each year, the overall gap in spending in all next 13 years would be about 4,601,874.3 Million PKR or $70,406 Million in real term (Figure 3.2). By translating it into nominal value the amount will be PKR 6,546,166.19 Million.

3.4.

CONCLUSION

For analysis, ordinary least square method for regression analysis has been used for the projection of the finance required to achieve the all targets (3.1-3.9) of health SDGs 3. We presented information about the life expectancy index for Punjab for last seven years. The future projection of life expectancy index for next 13 years are then made by using the compound growth rate. The on average gap in spending is measured as PKR 4,601,874.3 Million in real term while PKR 6,546,166.19 Million in nominal term. The future projection of allocations in health sector (Figure 3.3) shows that allocations will be 171 Billion in 2029-30. If all allocations are transferred efficiently into meaningful spending, then gap may be reduced. But the budget spending tracking exercises over the past couple of years reveal patterns of under-spending for both recurrent and development expenditure in health sector. So, both the allocation and spending are needed to be more focused to achieve the targets (3.1-3.9) of SDGs 3.
3.5. WAY FORWARD

After devolution, the province is now free to strategize, plan and act without federal dictation. Such strategies should be developed which are more relevant to increase the efficiency of spending. Health care spending at all tiers are indeed required to become more effective, otherwise, the increasing health care demand will undermine public finances. Rapid increase in health care prices and costly developments in medical technology are putting upward pressures on health care budgets. So, the health care spending is needed to be increased significantly.
Chapter 4

GOAL 4

Quality Education

2% of total Provincial Consolidated Fund is spent on school education.

61% Literacy rate in Punjab, too low to achieve the 100% target of SDGs in next 13 years until special governance & financial provisions.
THE GLOBAL GOALS
For Sustainable Development

1. NO POVERTY
2. ZERO HUNGER
3. GOOD HEALTH AND WELL-BEING
4. QUALITY EDUCATION

5. GENDER EQUALITY
6. CLEAN WATER AND SANITATION
7. AFFORDABLE AND CLEAN ENERGY
8. DECENT WORK AND ECONOMIC GROWTH

9. INDUSTRY, INNOVATION AND INFRASTRUCTURE
10. REDUCED INEQUALITIES
11. SUSTAINABLE CITIES AND COMMUNITIES
12. RESPONSIBLE CONSUMPTION AND PRODUCTION

13. CLIMATE ACTION
14. LIFE BELOW WATER
15. LIFE ON LAND
16. PEACE, JUSTICE AND STRONG INSTITUTIONS

17. PARTNERSHIPS FOR THE GOALS
4.0. INTRODUCTION

Punjab is the most densely populated province of Pakistan. Among 111 million people reside here, the literacy rate of 10+ years is about 61%. Although, the literacy rate has been increased from 27% to 47% during the period of 1981-1998 and 61% in 2017 but the growth rate in literacy has been decreased from 7.4% in 1998 to 3.4% in 2016 (Figure 4.1). But about 50 million adults (age 15+) in Punjab are still illiterate and 25% children age 5-14 do not attend school (Table 4.2). The nonattendance of school is most severe problem in rural areas and especially for girls. Although, after devolution, school education is the priority area of the government of Punjab and by acknowledging of education as a means for economic mobility, especially for the poor, the Punjab government has put its more focus on demand-side interventions to increase the demand for education amongst the poor and vulnerable groups, and has increased the budgetary expenditures for school education in the last few years (Figure 4.3). In 2015-16, Rs. 32 billion were spend for public school education in Punjab highlighting an increase of 54 percent over the last 7 years. The educational challenge still remains with around 7.6 million children of school-going age out of schools; from which more than fifty percent are female.

Various studies have been established to provide an evidence that money matters a lot to provide quality education to people. On average, higher per capita spending on students is positively associated with improved or higher student’s outcomes (Baker, 2016). Consistent developments and recurrent expenditures

The SDGs:

GOAL 4: QUALITY EDUCATION

Out of school children have to be estimated about 7.6 Million. The completion/survival rate at primary level is 74.9%.

Budgetary allocation to school level as percentage of total education budget has been increased from 53% in 2015-16 to 60% in 2016-17.
especially at local public-school level can lead to enhance in the level and quality of student outcomes. Although money alone may not be quite enough, efficiency and effectiveness of unbiased and adequate spending also provide primary condition for improving the equity and adequacy of outcomes. The literature suggests that appropriate combinations of more adequate allocations with more effectiveness for its spending may be most promising. Greenwald (2014) analyzed and concluded that increasing per-pupil expenditures in USA has a significant positive impact on student achievement. A sustainable educational reform is not possible without a
strong linkage between education policies, data and budgetary allocations and spending. The same is true in case of Punjab as well. The government of Punjab allocates a significant amount of resources every year in education sector but the gap between allocation and spending can be observed continuously (Table 4.1). In 2016-17 the part of unspent budget is about 26% which is relatively higher than the last year’s unspent budget. The past policies of education as well as the new one can also be better evaluated through the outcomes of academic performance and spending.

Table 4.1: Total Allocation vs spending in School education

<table>
<thead>
<tr>
<th>Period</th>
<th>Total Allocation on elementary &amp; school education</th>
<th>Total Nominal expenditure on elementary &amp; school education</th>
<th>% expenditure to allocation</th>
<th>Un Spent Budget (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-11</td>
<td>24398167297</td>
<td>17637806378</td>
<td>72%</td>
<td>28%</td>
</tr>
<tr>
<td>2011-12</td>
<td>30477436082</td>
<td>23630806658</td>
<td>78%</td>
<td>22%</td>
</tr>
<tr>
<td>2012-13</td>
<td>21026551421</td>
<td>18923548492</td>
<td>90%</td>
<td>10%</td>
</tr>
<tr>
<td>2013-14</td>
<td>33272112218</td>
<td>28859773297</td>
<td>87%</td>
<td>13%</td>
</tr>
<tr>
<td>2014-15</td>
<td>31019748940</td>
<td>26405754671</td>
<td>85%</td>
<td>15%</td>
</tr>
<tr>
<td>2015-16</td>
<td>35946377908</td>
<td>32390102302</td>
<td>90%</td>
<td>10%</td>
</tr>
<tr>
<td>2016-17</td>
<td>44224687486</td>
<td>32749749817</td>
<td>74%</td>
<td>26%</td>
</tr>
</tbody>
</table>

Source: Finance Department, Government of the Punjab
4.1. PUNJAB’S PERFORMANCE TO ACHIEVE MDG2

Among 25 indicators for which Punjab adopted to achieve the Millennium Development Goals, the progress on education which was one of the most important goals was quite very slow (Figure 4.4). One of the most important reason behind a slow progress may be the low level of spending. The spending in the MDGs regime was quite not enough to bring the millions of out of school children to bring them to school. In MDG 2, Punjab was likely to achieve only one-third of the universal primary education goal. Although, the MDGs education indicators in Punjab were slightly higher than those of other provinces as the edge for Punjab largely appeared in gender equality in girl’s education. But the weaknesses in planning, budgeting and expenditure management within the sector seriously undermined the government of Punjab’s ability to make significant progress towards the MDGs (Malik, 2011).

An increase in the budgetary allocation and spending for each consecutive year for school education demonstrated the priorities of the Governments. But despite a progressive increase in budgetary allocation by the government, the spending is still lowest in South-East Asia. Government of the Punjab has shown political commitment to bring improvements in the education sector as the MDGs laid the foundation for the SDGs to become the better, new, and improved goals; there would not be as clear of an understanding regarding the complex and comprehensive nature of development as a whole without them.

4.2. SDGs TARGETS OF EDUCATION

Millennium Development Goals were followed by Sustainable development in...
2015 goals as reference goals for global development for the period 2015-2030. Education is identified as standalone agenda in SDGs with its 7 outcome targets and 3 means of implementation. SDG4 aim to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. Each of the targets listed below presents a brief statement of the main policy commitments as derived from the Framework for Action.

### 4.2.1. Outcome Targets in Punjab

**Target 4.1** By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes.

**Target 4.2** By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education.

**Target 4.3** By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university.

**Target 4.4** By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.

**Target 4.5** By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations.

**Target 4.6** By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy.

**Target 4.7** By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and nonviolence, global citizenship and appreciation of cultural diversity and of culture’s contribution to sustainable development.
4.3. RESEARCH FOCUS AND OBJECTIVES

This chapter has a focus only on the public financing of education to achieve the target 4.1 in Punjab with an objective to provide an evidence regarding the allocations and expenditure made on education sector. According to the “Punjab free and compulsory education act 2014”, it is mandatory for government to provide every child free and compulsory education from class one to ten, non-formal education, vocational education or a combination of all or any of the two considering the needs, capability and age of the child so as to ensure completion of education or specified education in a school in the neighborhood or the school allocated for the child.

Punjab is still away from universal enrollment for the children aging between 5-9 years, which is witnessed as 46.1 percent while the net secondary school attendance rate is 42.1 percent (MICS, 2014). There is still a considerable number of children between 5-14 age group which are not attending the school (Table 4.2). So, this study has an objective to estimate the cost of ensuring a universal access and completion of primary and secondary school education in Punjab. The cumulative duration of Primary level education is 5-9 while the cumulative duration secondary level education is 10-14. To measure a universal access and completion of primary and secondary school education in Punjab, the expected year of schooling per child as an indicator has used for the analysis.

4.3.1. Research Questions

Based on the research objectives described above, the following research questions are set to be analyzed:

a. What is the level of expected year of schooling (primary & secondary) in Punjab?

b. How much budgetary spending are required to reach the desired level of expected year of schooling?

### TABLE 4.2

<table>
<thead>
<tr>
<th>Year</th>
<th>Population aged 5-14 (Derived from Punjab Development statistics, 2016)</th>
<th>Total Enrollment of Children Aging between 5-14</th>
<th>% of children aging between 5-14 attended the school</th>
<th>% of children aging between 5-15 un attended the school</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>24695000</td>
<td>19414280</td>
<td>79</td>
<td>21</td>
</tr>
<tr>
<td>2008</td>
<td>25288000</td>
<td>19887740</td>
<td>79</td>
<td>21</td>
</tr>
<tr>
<td>2009</td>
<td>25896000</td>
<td>20366320</td>
<td>79</td>
<td>21</td>
</tr>
<tr>
<td>2010</td>
<td>26336000</td>
<td>20807692</td>
<td>79</td>
<td>21</td>
</tr>
<tr>
<td>2011</td>
<td>27863268</td>
<td>22492179</td>
<td>81</td>
<td>19</td>
</tr>
<tr>
<td>2012</td>
<td>28456756</td>
<td>23486618</td>
<td>83</td>
<td>17</td>
</tr>
<tr>
<td>2013</td>
<td>29062885</td>
<td>23672136</td>
<td>81</td>
<td>19</td>
</tr>
<tr>
<td>2014</td>
<td>29681925</td>
<td>24564413</td>
<td>83</td>
<td>17</td>
</tr>
<tr>
<td>2015</td>
<td>30314150</td>
<td>24485035</td>
<td>81</td>
<td>19</td>
</tr>
<tr>
<td>2016</td>
<td>30959841</td>
<td>23238781</td>
<td>75</td>
<td>25</td>
</tr>
</tbody>
</table>

Source: Author’s calculation based on Census, 2017 and PSLM, 2014 Data
c. What is the gap between the budget required to achieve the SDG target and current trend of spending on school education in Punjab?

4.3.2. Limitation
The limitation of this analysis part is that it will treat towards the financial allocation and spending of last seven years for which the data set was available. Therefore, the conclusion of this research may be limited. To estimate the expected year of schooling, this analysis incorporates only the primary and high/secondary schools between 5-14 age group. Because in Punjab, there are no separate preprimary institutions in public sector where the intermediate/higher secondary education is provided at colleges level and separate budget under Higher Education labels’ is allocated to higher secondary education. So, here we exclude the preprimary and intermediate level education and would estimate only the required cost for completion of primary and secondary school education.

4.3.3. Methodology
The analysis in this section is quantitative in nature. The target 4.1 can be best embodied by expected year of schooling. For expected year of schooling, the standardized formula used by UNESCO in Human Development Index is used i.e.

\[ SLE_{i,l} = \sum_{i,t} E_{i,l}^t \times \frac{E_{unknown, l}^i}{SAP_{i,l}^t} D_{i,l}^t \]

Where:
- \( SLE_{i,l} \) = sum of age specific enrollment rates for a given level of education school life expectancy at age a for level l in year t
- \( E_{i,l}^t \) = Enrolment of population at age i in level l in year t
- \( P_i^t \) = Population of age i in year t
- \( E_{unknown, l}^i \) = enrolment of unknown age in level l in year t
- \( SAP_{i,l}^t \) = school-age population for level l in year t
- \( D_{i,l}^t \) = Theoretical duration of level l in year t

Simple linear regression, using the method of least square has been adopted to forecast the finance required to reach the desired level of expected year of schooling. The same technique has been used by UNDP to estimate the India’s financial requirement and gaps to achieve the education SDGs. The future budget expenditures have been measured by using the compound growth formula extracting through past trends in public spending. The gap is then extracted by subtracting the forecasted finance to the future trend of spending.

4.3.4. Data Sources
The data has been obtained from different sources such as the data on annual public expenditures on school educations has been directly obtained from respective office of finance department while the data on net and gross enrollment in different years has been taken from PSLM and Pakistan Education Statistics. The age wise distribution of population data has been taken from PSLM while the representative population has been drawn from the census reports 1998 and 2017.

4.3.5. Results
The total spending on education are 2% of total provincial spending. The spending in school education are increased from PKR 17 Billion in 2010-11 to PKR 32 Billion in 2016-17 (Table 4.3). But still the points of concern while considering budgetary allocation is that the budgetary allocations are not getting transferred into meaningful spending. In 2010-11, there was 28% unspent budget which was slightly decreased by 26% in 2016-17. In term of total real public expenditures, 39.8 percent increase can be observed between seven years, actual per capita real expenditures on children between 5-14 age group have been increase of 23% from 2010-11 to 2016-17.
while the population of this specific age group is increased by 13.4%. The number of years that a child school entrance age is expected to spend in school in the course of their life cycle with the current level of enrollment are also increased from 8.07 in 2010-11 to 8.27 in 2016-17. However, for the age 5-14, the target is to complete in 10-year schooling.

### Table 4.3: Public Expenditures on Education

<table>
<thead>
<tr>
<th>Period</th>
<th>Total Nominal expenditure on elementary &amp; school education*</th>
<th>Whole-sale Price Index (2010=100) *</th>
<th>Total real public expenditure (in 2010 prices) (in Millions)</th>
<th>Population aged 5-14 (Derived from Punjab Development statistics, 2016) *(In Millions)</th>
<th>Per Capita Real Expenditures (In PKR)</th>
<th>Expected year of schooling</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-11</td>
<td>17637806378</td>
<td>164.17</td>
<td>10743.6233</td>
<td>27.9</td>
<td>385.6</td>
<td>8.07</td>
</tr>
<tr>
<td>2011-12</td>
<td>23630806658</td>
<td>181.28</td>
<td>13535.52883</td>
<td>28.5</td>
<td>458.1</td>
<td>8.25</td>
</tr>
<tr>
<td>2012-13</td>
<td>18923548492</td>
<td>194.61</td>
<td>9723.831505</td>
<td>29.1</td>
<td>334.6</td>
<td>8.15</td>
</tr>
<tr>
<td>2013-14</td>
<td>28859773297</td>
<td>210.48</td>
<td>13711.40883</td>
<td>29.7</td>
<td>461.9</td>
<td>8.28</td>
</tr>
<tr>
<td>2014-15</td>
<td>26405754671</td>
<td>210.00</td>
<td>12574.16889</td>
<td>30.3</td>
<td>414.8</td>
<td>8.08</td>
</tr>
<tr>
<td>2015-16</td>
<td>32390102302</td>
<td>207.28</td>
<td>15626.25545</td>
<td>31.0</td>
<td>504.7</td>
<td>8.17</td>
</tr>
<tr>
<td>2016-17</td>
<td>32749749817</td>
<td>218.00</td>
<td>15022.82102</td>
<td>31.6</td>
<td>475.1</td>
<td>8.27</td>
</tr>
</tbody>
</table>

Source: Authors own calculation by using data from finance department and census 2017

The gap of expenditures in nominal term would be 155,902.25 Million PKR or 2795 Million US dollar.

### Table 4.4: Projected Public Expenditures

<table>
<thead>
<tr>
<th>Years</th>
<th>Expected Year of schooling</th>
<th>Real Per Capita Expenditures required</th>
<th>Total Real Expenditures Required in Millions)</th>
<th>Trend in Spending (In millions)</th>
<th>Per Year Gap in Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017-18</td>
<td>8.39</td>
<td>516.0</td>
<td>16663.07</td>
<td>15800.46</td>
<td>863</td>
</tr>
<tr>
<td>2018-19</td>
<td>8.48</td>
<td>549.0</td>
<td>18106.36</td>
<td>16621.12</td>
<td>1485</td>
</tr>
<tr>
<td>2019-20</td>
<td>8.60</td>
<td>598.0</td>
<td>20142.49</td>
<td>17481.52</td>
<td>2661</td>
</tr>
<tr>
<td>2020-21</td>
<td>8.73</td>
<td>648.0</td>
<td>22291.56</td>
<td>18389.50</td>
<td>3902</td>
</tr>
<tr>
<td>2021-22</td>
<td>8.86</td>
<td>698.0</td>
<td>24523.03</td>
<td>19344.63</td>
<td>5178</td>
</tr>
<tr>
<td>2022-23</td>
<td>8.99</td>
<td>749.0</td>
<td>26875.33</td>
<td>20349.37</td>
<td>6526</td>
</tr>
<tr>
<td>2023-24</td>
<td>9.11</td>
<td>798.0</td>
<td>29243.43</td>
<td>21406.30</td>
<td>7837</td>
</tr>
<tr>
<td>2024-25</td>
<td>9.25</td>
<td>851.0</td>
<td>31849.91</td>
<td>22518.12</td>
<td>9332</td>
</tr>
<tr>
<td>2025-26</td>
<td>9.38</td>
<td>902.0</td>
<td>34477.72</td>
<td>23687.69</td>
<td>10790</td>
</tr>
<tr>
<td>2026-27</td>
<td>9.51</td>
<td>956.0</td>
<td>37320.14</td>
<td>24918.00</td>
<td>12402</td>
</tr>
<tr>
<td>2027-28</td>
<td>9.65</td>
<td>1011.0</td>
<td>40307.87</td>
<td>26212.22</td>
<td>14096</td>
</tr>
<tr>
<td>2028-29</td>
<td>9.80</td>
<td>1066.0</td>
<td>43405.95</td>
<td>27573.65</td>
<td>15832</td>
</tr>
<tr>
<td>2029-30</td>
<td>10.00</td>
<td>1147.0</td>
<td>47698.94</td>
<td>29005.80</td>
<td>18693</td>
</tr>
</tbody>
</table>

Source: Authors calculation

Identification of Financial Requirements to Achieve the SDGs in Punjab
4.3.6. Estimation of Gap
Total real public expenditures required to achieve the required level of outcome in SDGs 4.1 is projected in Table 4.4. Total per capita expenditures have been regressed against expected year of schooling by using simple linear regression analysis. The targeted expected year of schooling for each year has been measured by the compound growth rate. The future population of the age group 5-14 is projected by calculating the compound growth rate of population from 2010 to 2017. The forecasted per capita expenditures are then multiplied by the projected population in each year to get the average real expenditures required to achieve the SDG 4.1. Future trend in spending elaborate that if the previous trend of spending in school education prevails then spending in 2017-18 will be PKR 15,800 Million while it would be increased up to PKR 29,005 Million in 2019-30 on average. With this trend, the overall gap in spending in all next 13 years would be about PKR 109,597.37 Million in real term and PKR 155,902.25 Million in nominal term.

4.4. CONCLUSION
The finance required to achieve the education SDGs 4.1 is estimated by using method of regression analysis. We presented information about the expected year of schooling for last seven years. On the base of this information, the future projection for next 13 years are made by using the compound growth rate. The average gap in spending is measured as Rs. 109,597.37 Million in nominal term. If the spending in school education follows the previous trend then in 2029-30, the total spending of school education in next 13 years will be on average Rs. 283,308.43 Million (Figure 4.5), if all the allocations are transferred efficiently and effectively into meaningful spending, the public-sector financing...
available to achieve SDGs will be more than enough. But the budget spending tracking exercises over the past couple of years reveal patterns of under-spending for both recurrent and development expenditure in Punjab (Table 4.1). There may be a number of reasons that contribute to under-spending at the provincial level but the main possible reason is the capacity to spend allocated funds (I-SAPS, 2014), that is needed to be improve. Although, after devolution in 18th amendment, both the education allocations and expenditure have been increasing in Punjab, but allocation are not spent meaningfully. Currently Punjab Govt. is privatizing the education sector. If that trend continues, then indicator 4.1 may be achieved with less spending too.

4.5. WAY FORWARD

Despite spending relatively well on education than other provinces, the indicators of education are not reflecting a good picture in Punjab. This lower performance in education sector may be an outcome of weak sector governance. A significant amount of allocated financial resources has remained unspent. The accountability system in school education needs to be enhanced through a more evocative yet rational approach.
GOAL 6

Chapter 5

Clean Water and Sanitation

46% Population in Punjab has access to tap water through pipe networks, 8 percent by hand pumps, 37 percent by motor pumps, and 8 percent others.

94% of the population uses an improved source of drinking water – 89% in urban areas and 97% in rural Punjab.
THE GLOBAL GOALS
For Sustainable Development

1. NO POVERTY
2. ZERO HUNGER
3. GOOD HEALTH AND WELL-BEING
4. QUALITY EDUCATION
5. GENDER EQUALITY
6. CLEAN WATER AND SANITATION
7. AFFORDABLE AND CLEAN ENERGY
8. DECENT WORK AND ECONOMIC GROWTH
9. INDUSTRY, INNOVATION AND INFRASTRUCTURE
10. REDUCED INEQUALITIES
11. SUSTAINABLE CITIES AND COMMUNITIES
12. RESPONSIBLE CONSUMPTION AND PRODUCTION
13. CLIMATE ACTION
14. LIFE BELOW WATER
15. LIFE ON LAND
16. PEACE, JUSTICE AND STRONG INSTITUTIONS
17. PARTNERSHIPS FOR THE GOALS
5.0. INTRODUCTION

Water is a vital resource for life and health of human being. It is essential environmental, social and cultural squares. Moreover, water and sanitation are fundamental human right, hence it provides base to the recognition and endowment of other human right. In September 2016, United Nations Member States declared Goal 6 of this development Agenda “by 2030, ensure availability and sustainable management of water and sanitation for all,” for Sustainable Development. This agenda encompasses the targets of goal 7 of the Millennium Development Goals.

To achieve universal and equitable access to safe and affordable drinking-water for all” (Target 6.1).

“...achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations” (Target 6.2).

GOAL 6: CLEAN WATER AND SANITATION

53,000

Children die every year from diarrhoea (water borne disease) in Pakistan, of which 27,000 in the Punjab only. To achieve universal access to safe drinking Water and Sanitation is Government of the Punjab’s commitment.
Development (MDG) to comprise all drinking water issues in the perspective of social, economic and environmental sustainability in a whole spectrum. The first two targets of sustainable development goal 6 exalt commitment are to enhance access to sustainable sanitation and safe water amenities. The SDG 6 comprises of 6 targets whereas in this study we have focused on the following two targets:

The WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP)\(^{13}\) has defined (Table 5.1) the indicators by giving the following interpretations on SDG 6.1 and 6.2. The SDG 6.1 is to achieve universal and equitable access to safe and affordable drinking water for all by 2030, JMP interprets it by safely managed drinking water which is in access of all and free of contamination.

While SDG 6.2 is to achieve access to adequate and equitable sanitation and hygiene for all and end open defecation,

<table>
<thead>
<tr>
<th>Table 5.1</th>
<th>JMP Interpretation for SDG Targets 6.1 &amp; 6.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDG 6.1.1</td>
<td>• Population using safely managed drinking water services</td>
</tr>
</tbody>
</table>
| SDG 6.2.1  | • Population using safely managed sanitation services  
            • Population practicing open defecation  
            • Population with a basic handwashing facility with soap and water available on premises |

Source: JMP-2017

<table>
<thead>
<tr>
<th>Table 5.2</th>
<th>Service Level Definition of SDG Target 6.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Level</td>
<td>Definition</td>
</tr>
<tr>
<td>Safely Managed</td>
<td>Drinking water from an improved water source that is located on premises, available when needed and free from faecal and priority chemical contamination</td>
</tr>
<tr>
<td>Basic</td>
<td>Drinking water from an improved source, provided collection time is not more than 30 minutes for a round trip, including queuing</td>
</tr>
<tr>
<td>Limited</td>
<td>Drinking water from an improved source for which collection time exceeds 30 minutes for a round trip, including queuing</td>
</tr>
<tr>
<td>Unimproved</td>
<td>Drinking water from an unprotected dug well or unprotected spring</td>
</tr>
<tr>
<td>Surface Water</td>
<td>Drinking water directly from a river, dam, lake, pond, stream, canal or irrigation canal</td>
</tr>
</tbody>
</table>

Source: JMP-2017

Identification of Financial Requirements to Achieve the SDGs in Punjab
paying special attention to the needs of women and girls and those in vulnerable situations. The Joint Monitoring Programme of WHO/UNICEF has interpreted the target 6.1 by defining concept of safely managed water under three major indicators availability, accessibility and quality (JMP, 2017). In order to achieve the criteria for a safely managed drinking water service (SDG 6.1) (Figure 5.1), people must use an improved source meeting these standards as defined in Figure and Table:

- It should be accessible on premises,
- Water should be available when

---

**FIGURE 5.1** JMP Ladder for Drinking Water Services

Source: Source: JMP -2017

**FIGURE 5.2** JMP Ladder for Sanitation Services

Source: Source: JMP -2017
needed, and
- The water supplied should be free from contamination.

It indicates that safely managed water should meet all three criteria, if one of these is missing or water is not available on premises it takes 30 minutes (Table 5.2) to collect water then it will fall under SDG Target 1.4 which defines equal access to basic services. On the other hand, if it takes more than 30 minutes to collect water from improved source it will be considered as limited services.

However, JMP defines SDG Target 6.2 (Table 5.3) in three ways; safely managed sanitation services which are not shared by more than members of the household, secondly reduce the number of people practicing open defecation by improving sanitation facilities and, lastly people should have basic handwashing facility with soap and water availability on premises. Three major indicators to meet the criteria of SDG Target 6.2 “Safely managed sanitation services” (Figure 5.2) are defined by JMP as fellow:
- Treated and disposed of in situ,
- Stored temporarily and then emptied, transported and treated off-site, or
- Transported through a sewer with wastewater and then treated off-}

<table>
<thead>
<tr>
<th>Service Level</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safely Managed</td>
<td>Use of improved facilities that are not shared with other households and where excreta are safely disposed of in situ or transported and treated off-site</td>
</tr>
<tr>
<td>Basic</td>
<td>Use of improved facilities that are not shared with other households</td>
</tr>
<tr>
<td>Limited</td>
<td>Use of improved facilities shared between two or more households</td>
</tr>
<tr>
<td>Unimproved</td>
<td>Use of pit latrines without a slab or platform, hanging latrines or bucket latrines</td>
</tr>
<tr>
<td>Open Defecation</td>
<td>Disposal of human faeces in fields, forests, bushes, open bodies of water, beaches or other open spaces, or with solid waste</td>
</tr>
</tbody>
</table>

Source: JMP-2017

Poverty, education and health are interrelated and accomplishment of WASH targets.
Identification of Financial Requirements to Achieve the SDGs in Punjab

6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all
6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations
6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally
6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity
6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate
6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes
6.a By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programs, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies
6.b Support and strengthen the participation of local communities in improving water and sanitation

site plus handwashing facility with soap & water.

The remaining targets of SDGs 6 deal with issues related to water use efficiency, water resource management, waste water management and protection and restoration of water related ecosystem. Moreover, poor and inadequate WASH services have negative impact on poverty, health and education related targets of SDGs e.g. SDGs target 1.4\(^6\); equal access to basic services (including basic water, sanitation and hygiene facilities), SDGs target 3.9; reduce the number of deaths and illness from contaminated water SDG target 4a; Proportion of school with access to basic drinking water, and sanitation and facilities (as per the WASH indicator definition). Therefore, all these targets of WASH, poverty, education and health are interrelated and accomplishment of WASH targets would positively affect others. In this regard, good governance, administrative and technical capacity, huge resources and financial investment is required to meet these targets. The World Bank has analyzed the global financial requirement to meet SDGs target 6.1 and 6.2. Based on the current financial trends in WASH sector it is estimated that, by 2030 these finances are only adequate to cover the capital cost of meeting basic universal WASH services.

Globally US $ 114 Billion per year is required to meet the SDGs target 6.1 and 6.2 excluding operation and maintenance cost which are the key components of sustainable services (Hutton & Varughese, 2016). WASH sector investments will have positive effects and leads to improvement in other important areas of SDGs e.g. education, economic development and nutrition.
5.1. WASH: FACTS & FIGURES

On the basis of increasing trends of population growth, it is estimated that the population of Punjab will be 144 million by 2030. If the current growth rate 2.1 is maintained, high population density and growth would lead to increased demand for water, sanitation and hygiene services.

According to Punjab multiple indicator survey-2014 (Figure 5.3) approximately 94% of the Punjab population uses improved source of drinking water with

Source: Multiple Indicator Survey (MICS), 2014

Households by Type of Hygiene Availability and Type of Toilet

Source: Multiple Indicator Survey (MICS), 2014
respect to 97% of the rural areas and 89% of the urban areas while 66% households have access to improved sanitation facilities. However, urban population has more access to improved services as compared to rural which is only 57% while 79.6% (Figure 5.4) households having place for hand-washing and 79% use flush toilet.

In Punjab, approximately 35% water sources are safe for drinking purposes\(^7\). These water sources include hand pump, dug well, motor pump, tap water, streams, spring water filtration plants and surface water etc. According to PSLM-2014-15 (Figure 5.5) motor pump is the biggest drinking water source in Punjab and Paki-

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\(\boxed{\text{Filtration plants in Punjab are not up to the definition of safely managed water as described in the SDG Target 6.1.}}\)
Identification of Financial Requirements to Achieve the SDGs in Punjab

Chapter 4: Quality Education

**SDG Target 6.1:** According to Punjab MICS-2014 (Figure 5.6) around 80% households have water within premises and it is available when needed. While around 94% population has access to improved water facilities. The PCRWR and PHED water quality data on most important indicator of safely managed services indicates that 35% population has access to safe drinking water which is free from contamination.

On the basis of JMP definition of safely managed drinking water services the following (Table 5.4) calculations done by UNICEF on water, sanitation and hygiene sector by using MICS 2014 and quality data furnished by PCRWR illustrates that the SDG 6.1 for Punjab is 35.55%.

**Table 5.4** Safely Managed Water Services

<table>
<thead>
<tr>
<th>SDGs</th>
<th>Service Ladder</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target 6.1</td>
<td>Safely Managed Drinking Water</td>
<td>Improved water supply facility that is located on premises, available when needed and that results in drinking water free from bacterial contamination</td>
</tr>
</tbody>
</table>

- **Coverage:** MICS-2014
- **Source of Information:**
  - Improved water/basic water: 94.4%
  - Water accessible & available in premises: 80.8%
  - 56% of HHs reported having bacterial contamination as per PCRWR data so water free from bacterial contamination is 44%
  - HHs using an improved water supply facility that is located on premises and free from bacterial contamination: 80.8% * 0.44% = 35.55% as per PCRWR

Source: UNICEF-2016

stan as well-45% of household’s use motor pump in Punjab and 33% in Pakistan respectively, whereas, tap water is the second source with 18% in Punjab and 27% in Pakistan. Moreover, safely managed water is free from both contamination chemical and microbiological. Major initiatives are being taken by government of Punjab to address water quality issues e.g. installation of filtration plants. While these filtration plants are not up to the definition of safely managed water as described in target 6.1 of sustainable development goal.

SDG Target 6.2: MICS-2014 reveals data (Figure 5.7) on major indicators of safely managed sanitation services including open defecation, handwashing and improved sanitation. In Punjab, 17.5% population practice open defecation while 78% people have water and soap available at the specific place for handwashing. Furthermore, 75% population have access to improved sanitation services.

Table 5.5 below reveals information on the Punjab SDG Target 6.2 by using...
MICS 2014 data set. On the basis of calculations, 51% households have access to safely managed sanitation services along with the coverage of hygiene indicators of SDG Target 6.2; handwashing facility with soap and water.

Table 5.5: Safely Managed Sanitation Services

<table>
<thead>
<tr>
<th>SDGs</th>
<th>Service Ladder</th>
<th>Definitions Coverage</th>
<th>Coverage</th>
<th>Source of Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target 6.2</td>
<td>Safely Managed Sanitation</td>
<td>Improved facility where faecal wastes are safely disposed on site or transported &amp; treated off-site, plus a hand washing facility with soap and water</td>
<td>51%</td>
<td>MICS-2014</td>
</tr>
</tbody>
</table>

HHs from improved sanitation that contains only connections with septic tanks and sewers are: 65.4%

HHs having handwashing facility with water & soap: 78.1%

HHs using safely managed sanitation facility including handwashing with water & soap: 65.4% * 78.1% = 51%

Source: UNICEF-2016
5.2. MDGS VS SDGS: FACTS AND FIGURES

Sustainable development goals are more ambitious/determined than millennium development goals in terms of equal access by addressing discrimination, universality by defining access to all and hygiene by focusing on contaminations both chemical and microbiological.

On the other hand, MDGs target was on improved water sources, by definition and by nature of construction improved water sources are those which provide water within premises through improved

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Water</th>
<th>Sanitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>1990</td>
<td>77</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>81</td>
<td>56</td>
</tr>
<tr>
<td>India</td>
<td>1990</td>
<td>69</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>92</td>
<td>34</td>
</tr>
<tr>
<td>Nepal</td>
<td>1990</td>
<td>76</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>89</td>
<td>31</td>
</tr>
<tr>
<td>Pakistan</td>
<td>1990</td>
<td>85</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>92</td>
<td>48</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>1990</td>
<td>67</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>91</td>
<td>92</td>
</tr>
</tbody>
</table>

Source: Pakistan water supply and sanitation sector study, 2013
sources e.g. motor pump, hand pump and tap water etc. According to this definition we have achieved MDGs Target 7.4 at national and Punjab level (Table 5.6). In fact, Pakistan\(^{20}\) is one of the 95 countries who met the MDGs targets for water and sanitation. However, MDGs target didn’t include element of water contamination its focus was on improved water sources, still Baluchistan and KPK was off-track and were not able to meet the target. While Punjab’s\(^{21}\) status was higher than all provinces as 92% population has access to improved water sources as compared to the national figure which is 87%. Furthermore, 64% households at national level uses improved sanitation services.

Regional comparison (Table 5.7) on water and sanitation facilities reveals that Pakistan has significantly improved in sanitation services as open defecation number have reduced from 52% to 23% and 48% population has access to improved sanitation services which is far more better as compare to India; 34% and Nepal 31%. Moreover 92% population has access to improved water facilities as compared to Bangladesh; 81% and Nepal 89%.

5.3. THE HEALTH EFFECTS OF WASH

Water and sanitation are essential health and socio-economic indicators and main contributing factors of child and maternal health, economic efficiency and family well-being.\(^{22}\) Approximately, 884 million people of the world are unable to use drinking water from improved sources. This situation is worse in developing countries and Pakistan is one of them who is incapable to meet the demand of safe drinking water (HAI, 2014). Due to bad services of WASH country has to face health and economic crises. Pakistan has to bear PKR 25-28 Billion annual loss because of water related diseases which is approximately 0.6 to 1.44% of the GDP\(^{23}\). Inadequate quality of water, sanitation and hygiene badly affect health and become the reason of spreading many diseases e.g. diarrhea, typhoid and hepatitis etc.\(^{24}\) Diarrhea and typhoid are two major water borne diseases

![Figure 5.8: Under 5 Mortality Rates in Punjab](source: MICS, 2014)
and children are more vulnerable to these diseases. Major cause of child diarrhea is poor quality of water and sanitation that's why child mortality rate is higher in the developing countries. (Fewtrell, Colford, & Jr., 2004) Pakistan has the highest child mortality rate as per UNICEF progress report on sanitation 110 children die every day due to diarrheal diseases and the major cause behind it is inadequate sanitation.
As per Punjab multiple indicator survey (MICS, 2014) under Five Mortality Rate is 104 per 1000 lives. Data (Figure 5.8) indicates that 93%\textsuperscript{25} children under five dies in Punjab which is quite high with a wide disparity between rural (105%) and urban (69%). This situation is worse in rural areas as compared to urban. Moreover, lack of sanitation services costs Pakistan PKR 343.7 billion every year – equal to 3.94 percent of GDP\textsuperscript{26}. The following map proves the importance of water quality and demonstrates the scenario of waterborne diseases in different districts of Punjab. It shows that, districts located in southern Punjab e.g. Rajanpur, DG Khan and Muzaffargarh are more affected than others and need critical attention towards the issue of water quality and community health.

5.4. GOVERNMENT RESPONSE TO WASH SERVICES

Under the constitution of 1973 provision of water supply and sanitation services is the responsibility of provincial government. Punjab local government act 2013 has transferred this responsibility to the local governments. Now main institutions such as Public Health Engineering Department and Housing Urban Department (PHED & HUD) and Local Government and Community Development Department (LG&CDD) are operating at the provincial level. In 2011, Punjab developed drinking water policy with the vision to provide safe drinking water at an affordable cost. On the other hand Punjab government has planned to overcome the critical issue of water-borne diseases through improving drinking water quality and sanitation services in rural and un-served areas. For this purpose Punjab water and sanitation rural agenda was developed in 2014.\textsuperscript{28} In addition to that Punjab economic growth strategy 2014-2018 also gives importance to water and sanitation services by recognizing that investments in WASH sector leads to decrease in the health issues e.g. child mortality rate, diarrheal-related diseases and water borne diseases.\textsuperscript{29} Furthermore post-development agenda is also aligned with WASH SDGs which has been prepared under the consultation of WHO/UNICEF joint monitoring Programme. The key elements of this agenda are:

By 2030 to

- Eliminate open defecation
- Achieve universal access to basic drinking water, sanitation and hygiene for households, schools and health facilities
- Halve the proportion of the population without access at home to safely managed drinking water and sanitation services
- Progressively eliminate inequalities in access.

In 2015, Punjab has established financial strategy to allocate PKR 30 billion per year for development programs of WASH sector till 2025.\textsuperscript{30}

5.5. RESEARCH FOCUS AND OBJECTIVES

This section focuses only on the public financing on drinking water and sanitation services to achieve the SDGs target 6.1 and 6.2 in Punjab with a specific focus on...
finding if there are any gaps in financing the proposed indicators of WASH.

5.5.1. Research Questions

With the objectives described in above paragraph, this study will aim to answer the following research questions in this section:

a. How much budgetary spending is required to achieve universal and equitable access to safe and affordable drinking water for all by 2030?

b. How much budgetary spending is required by 2030 to achieve access to adequate and equitable sanitation and hygiene for all and open defecation, paying special attention to the needs of women and girls and those in vulnerable situations?

c. What is the gap between the budget required to achieve the SDG target on WASH?

5.5.2. Methodology

Simple linear regression, using the method of least square has been adopted to forecast the finance required to meet the SDGs target on WASH by 2030. The future budget expenditures have been measured by using the compound growth formula assuming that the past trends in public spending will be followed in the future as well. The gap is then calculated by subtracting the forecasted finance to the future trend of spending.

5.5.3. Data Sources

The data has been obtained from different sources such as the data on annual public expenditures on water and sanitation schemes obtained directly from P&D and HUD & PHED whereas the data on improved sources of drinking water and sanitation has been obtained from MICS, PSLM while the data on safely managed water is extracted from PCRW Report.

5.5.4. Estimation of Finance Required and Gap in Achieving SDGs Targets Related to WASH

The total nominal public expenditures for drinking water supply and sanitation services (in millions) were taken for the last seven years (2010-11 to 2016-17). It was divided by the Wholesale Price Index for the respective years (with 2007-08 as the base year) to arrive at the real public expenditure for water supply and sanitation (in millions). The total population was projected using the 1998 & 2017 population census on the basis of growth rate. The per capita expenditure of drinking water and sanitation was estimated by dividing the total real public expenditure with the total population.

In order to achieve the SDG target 6.1 & 6.2 for universal and equitable access to safe and affordable drinking water and sanitation and hygiene for all by the year 2030, population access to safe drinking water and safe sanitation facilities is set at 100 percent in the year 2030. The future expenditures to achieve universal access were measured using a compound growth rate formula, assuming that expenditures would continue to grow with the same trend. The total expenditure required from 2017-2030 (in 2007-08 prices (in millions) to meet safely managed water target were measured using a linear regression model. The details of the results can be found in annexure A & B.

The results indicate that the Government of Punjab is currently spending PKR 65,704 million on drinking water supply services which are not enough to meet the SDG Target 6.1 (Table 5.8).
The drinking water supply expenditures (in millions), if continue growing at the same trend, will result in total expenditure of Rs. 168,311.6 Million by the year 2030 (Table 5.9), whereas, the total expenditure required (in millions) to provide the people safely managed water services by 2030 is Rs. 201,047.7 Million. With this trend the analysis indicates that overall gap with respect to 13 years of spending is PKR 32,736.1 million. This implies that the positive gap in spending reflects that if there would be more people having access to safely managed water facilities, the volume of budget the government spends on them may also be increased.

The results on sanitation analysis indicate that the Government of Punjab is currently spending sufficient amount to provide safe sanitation services to the people (Table 5.10). The sanitation expenditures (in millions), if they continue growing at the same trend, will result in total expenditure of PKR 380,468.6 Million by the year 2030 (Table 5.11). The total expenditure required (in millions) for safely managed sanitation facilities is PKR 319,548.6 Million.

5.6. CONCLUSION
The above analysis shows that Government spending on water supply and sanitation schemes has increased over the year but more financial expenditures are required for universal and equitable access to safely managed water facilities in future. The government has made vast strides to improve the drinking water and sanitation services through sustainable water supply and sanitation schemes, polices & development programs. The report has estimated financial requirement to meet the SDG 6.1 & 6.2 through regression analysis by using the method of least square. It indicates that 100% population will be able to use safely managed WASH facilities if Punjab government spends PKR 201,047.7 Million on drinking water services and PKR 319,548.6 Million on sanitation facilities. On the other hand, the finance expected to be available from 2017-2030 in 2007-08 prices is roughly PKR 168,311.6 Million for drinking water and PKR 380,468.6 million for sanitation.
## ANNEXURE TO SDGs TARGET 6.1 & 6.2

### Annexure A (6.1)

#### TABLE 5.8

<table>
<thead>
<tr>
<th></th>
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<td>98889474</td>
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<tr>
<td>2014-15</td>
<td>10279.24</td>
<td>210.0</td>
<td>4894.88</td>
<td>105344063</td>
<td>33</td>
<td>34.6</td>
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<td>2015-16</td>
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<td>2016-17</td>
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<td>38</td>
<td>41.5</td>
<td>161</td>
</tr>
</tbody>
</table>

Source: Author's calculation based on Census, 2017 and PSLM, 2014 Data  
*Data source: Annual Development Plan, Government of the Punjab  
** Fifth & Sixth Population and Housing Census, Pakistan Bureau of Statistics  
*** Water quality status of major cities of Pakistan, PCRWR
### Table 5.9: Estimation of Finance Required for Water Services, 2017-30

<table>
<thead>
<tr>
<th>Period</th>
<th>Total Projected Population</th>
<th>Population access to safe drinking water</th>
<th>Population access to safe drinking water</th>
<th>Total Public expenditures required</th>
<th>Trends in public spending</th>
<th>Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017-18</td>
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<td>45687387</td>
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<td>2020-21</td>
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<td>51</td>
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<td><strong>168311.6</strong></td>
<td><strong>32736.1</strong></td>
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Source: Author’s calculation

### Figure 5.9: Gap in Spending (in Million)

![Gap in Spending Graph](image)

Source: Author’s Calculations
### Table 5.10
**Available Data on Public Expenditure on Sanitation (all expenditures in PKR millions)**

<table>
<thead>
<tr>
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<td>268</td>
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</table>

Source: Author’s calculation based on Census, 2017 and PSLM, 2014 Data

*Data source: Annual Development Plan, Government of the Punjab
** Fifth & Sixth Population and Housing Census, Pakistan Bureau of Statistics
*** Multiple Indicator Cluster Survey (MICS)

### Table 5.11
**Estimation of Finance Required & Gap for Sanitation, 2017-30**

<table>
<thead>
<tr>
<th>Period</th>
<th>Total Projected Population</th>
<th>Population access to safe Sanitation (%)</th>
<th>Population access to safe Sanitation</th>
<th>Total Public expenditures required</th>
<th>Trends in public spending</th>
<th>Gap</th>
</tr>
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<td>2017-18</td>
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<tr>
<td>2029-30</td>
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<td><strong>Total</strong></td>
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<td><strong>380468.6</strong></td>
<td><strong>-60920.0</strong></td>
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</table>

Source: Author’s calculation
6.0. CONCLUDING REMARKS

As Pakistan was way off track on MDGs targets, it had achieved the targets on 93 indicators and showed poor progress on 24 indicators. Subsequently, it had failed to achieve the MDGs in health, education, social welfare and other areas. Whereas, Punjab had performed better as compared to the other provinces but failed to achieve its intended outcome. There are many reasons behind the poor performance of Pakistan in MDGs; including undermine ownership of the MDGs, non-serious attitude of the government, financial constraints and poor governance etc.

Now Pakistan has adopted the post-15 UN development agenda comprising of 17 sustainable Development Goals (SDGs) and 169 targets replacing the MDGs. The universal set of goals, targets and indicators have covered under 3 dimensions; social, economic and environmental, also known as three main pillars of the sustainable development. These aspirational goals demand reconsideration in development procedures across the globe. There is need to devote substantial resources and significant investments in important areas which have been identified in the framework of the SDGs for all member states. To realize this vision, a determined and an ambitious financial plans and implementation is required. According to UNCTA32, there is USD 5 to USD 7 trillion per year investment required to meet the SDGs at the global level. Moreover, the UNCTAD report estimated total investment needs about USD 3.9 trillion per year in developing countries mainly for basic infrastructure.

In this report we provide our analysis based on assessment of sustainable financial needs, current public financing trends and future investment requirements and gaps to meet the specific targets and indicators of social sector related SDGs targets in Punjab. Furthermore, this report adopts the approach in estimating the financial requirement by review and analysis of various available studies on the relevant theme.

We have focused on social dimension of SDGs and analyzed the financial needs on the selected indicators of poverty, health, education, and WASH goals. The assessment of total investment needs to achieve the targets that have been projected on the basis of public expenditure trends from the 2010-FY to 2017-FY and financial gap is calculated by comparing the finance required to the available finance.

SDG indicator 1.2.2., the study results reveal that per capita pro-poor expenditures have been increased from Rs. 4099 million in 2006-07 to 14127 million in 2015-16 in Punjab. The high per capita targeted pro-poor spending has decreased the incidence of poverty from 46% to 31.4% between the periods of last 10 years. The poverty expenditures (in millions), if they continue growing at the same trend, will result in total expenditure of Rs. 11,947,408 million on average by the year 2030. The total expenditure required; in order to achieve the SDG indicator 1.2.2 of minimizing poverty to its half by the year 2030 (in millions) stand at PKR 7,484,936 Million on average. This implies that there is a negative gap in expenditures of PKR. -4,462,472 or the government is spending more than what is required to lift half the people out of poverty.

SDG 3, the analysis shows that on average there will be PKR 716,355 Million available to spend in all next 13 years but the actual finance required for all targets
(3.1-3.9) of health SDG 3 is around PKR 5,318,229 Million. By summing up the gap in each year, the overall gap in spending in all next 13 years would be about 4,601,874.3 Million PKR. This indicates that financial gap can be reduced by effective budget utilization. Moreover, public budget allocation and expenditures should be more focused to achieve the targets of health sustainable goals.

SDG target 4.1., if the allocations in school education follow the previous trend then, total investment need around PKR 283,308.43 million for SDGs target 4.1. and PKR 392,905.80 Million actual finance required to meet this target. With this trend, the overall gap in spending will be about PKR 109,597.37 Million on average.

SDG target 6.1 & 6.2, the drinking water supply expenditures (in millions), if they continue growing at the same trend of public spending, will result in total expenditure of Rs. 168,311.6 million by the year 2030, whereas, the total expenditure required (in millions) to provide the people safely managed water services by 2030 is PKR. 201,047.7 Million. With this trend the analysis indicates that overall gap with respect to 13 years of spending is PKR 327, 36.1 million. This implies that the positive gap in spending reflects that if there would be more people to have access to safely managed water facilities, the volume of budget that the government spent on them may also be increased. On the other hand, the total expenditure required (in millions) for safely managed sanitation facilities is PKR. 319,548.6 Million.

7.0.
RECOMMENDATIONS

This analysis must be considered as an initial step in the financial assessment of SDGs in Punjab and the given financial estimates may provide minimum figures as the actual financial requirement can be higher or exceed. The following recommendations are based on the study results:

- Good financial governance is crucial. Currently, enough budget is being allocated in health, education and poverty alleviation by Punjab government but budget spending is very low due to lack of transparency, accountability and ineffective utilization of public resources. The budget allocation and spending mechanism should be improved.

- Resources are there but there is lack of capacity to spend to generate the outcomes. So, it is needed to strengthen the M&E system at the provincial level using the most effective instruments so that government can insure service delivery system and translate the resources into outcomes.

- There is need of some serious policy implications for the provision of safe drinking water and sanitation to all. As study results show that only 35% of the population has access to safe drinking water and 51% has safe sanitation facilities in Punjab while SDGs target is 100%.

- There is need to ensure that planning, devolution and finance system in holistic ways is actually pursuing the outcomes and increasing equity.

- This study has analyzed the specific indicators of 4 goals of post-15 sustainable agenda due to time and data constraints. There is need of in-depth financial analysis of remaining targets and indicators of these goals at Punjab level and...
Concluding Remarks and Recommendations

- Non-availability of data is a major constraint for researchers, data should be available against all targets and indicators of SDGs.
- Studies should be conducted to understand the situation at micro level. District level analysis of requirement of finance to achieve the SDGs is needed.
- There is a need to design the sustainable development financing strategies and financing mechanism i-e short term, medium term and long term sustainable development investment plans and its appropriate usage and needs because the quality of finance is very important.


ESCAP. (2014). Accelerating MDGs achievement in Asia and the Pacific: the role of public expenditure. UN.


Greenwald, L. V. (2014). The Effect of School Resources on Student Achievement.


JMP. (2017). Progress on Drinking Water, Sanitation and Hygiene. WHO/UNICEF.


1. SDGs & Integration: Achieving a better balance between the economic, social and environmental dimensions by Stakeholder Forum.

2. Why have the MDGs failed, The News Article Published on March 9, 2017.


6. Punjab Health Department.


8. MICS, 2014 (Punjab).


10. MICS, 2014 (Punjab).

11. Finance Department, Punjab.


14. Note: Improved sources include: piped water, boreholes or tube wells, protected dug wells, protected springs, and packaged or delivered water.

15. Improved facilities include flush/pour flush to piped sewer systems, septic tanks or pit latrines; ventilated improved pit latrines, composting toilets or pit latrines with slabs.


20. Improve water & sanitation 2013-15, UNICEF.

21. Punjab MDGs report 2011, UNDP.

22. Metadata for Goal 6, UNSD.


25. Note: Indicator values are per 1,000 live births.


PERI’s PUBLICATIONS

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Muhammad Imran
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Publication No. 425

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Publication No. 418

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Midterm Evaluation of Literate Punjab Programme Publication No. 403

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Impact Evaluation for Service Delivery of Schedule Hospitals Managed by Punjab Employee’s Social Security Institution (PESSI) and Punjab Social Security Health Publication No. 402

Farm Accounts, Family Budgets of Rural Families and Cost of Production of Major Crops in Punjab Publication No. 401

Post Project Evaluation of Fruit & Vegetable Development Project – Punjab Publication No. 400

2010
Evaluation of Enumeration of Linear Plantation in Punjab Publication No. 399

Farm Accounts, Family Budgets of Rural Families and Cost of Production of Major Crops in Punjab 2007-2008 Publication No. 398

Midterm Evaluation of Impact Analysis for Proper Initiatives (Sehat - Saulat Card) Publication No. 397

Midterm Evaluation of Gender Reform Action Plan (GRAP) Publication No. 396

**Research and Conference Papers**

**Does Water Metering Incentivizes Pro-Conservation Preferences: A Study from Lahore, Pakistan**
Annum Azhar, Assistant Research Fellow
Presented at the AERC International Conference 2017

Ms. Javeria Khalid, Assistant Research Fellow
Paper presented at the International Conference on Gender, Work and Society organized by the Suleman Dawood School of Business, LUMS on 22-23 April, 2017

Research Paper Sufficiency Analysis of Local Production Capacity in Punjab for the Requirement of CPEC
Dr. Mumtaz Anwar Chaudhry, Director PERI and Hafiz Ghulam Mujaddad, Associate Research Fellow

Effect of Agglomeration on Socio-Economic Outcomes: A District level Panel Study Of Punjab
Dr. Shahid Adil, Senior Research Economist and Annum Azhar, Associate Research Fellow

Micro-finance Loans in Punjab
DAILY TIMES e-paper has published Mr. Amir Shahzad Sivia, Associate Research Fellow, article on 17 November, 2016.

Gram and Moon Price Forecasting in Punjab: A District Analysis.
Amir Shahzad Sivia
Accepted & to be presented in IBA Sukhar Conference on 15th December, 2016.

Measuring Efficiency of Manufacturing Industries in Pakistan: An Application of DEA Double Bootstrap Technique.
Hafiz Ghulam Mujaddad
Published in “Pakistan Economic and Social Review” Volume 54, No. 2 (Winter 2016), pp. 363-384, X Category Journal.

**Discussion Papers**

**Rotten Kid or Forgotten Kid? On Child Disciplining in Punjab**

**Economics of Irrigation Induced Land Degradation: Issues and Threats for Food Security - (Case Study of Punjab, Pakistan)**
January - 2016

**Willingness To Pay For Clean Water Supply Service - A Case Study of Sialkot**
December - 2015

**Evaluation of Iron Ore Near Chiniot, District Jhang**

**Assessing the Impact of Conversion of Electric – Flat Rate Tube Wells to Metered Electric**

**Allocation of Labor Supply Between Farm and Non-Farm Jobs in the Rural Economy of Pakistan’s Punjab**

**Incorporating Kenaf into Whole Farm Planning Under Uncertainty: An Application of Target MOTAD**

**Analysis of Rural Poverty in Punjab [Pakistan]: A Case Study of Non-Farm Households**

**Economics of Floriculture**

**Non-parametric Efficiency Analysis of Punjab, Pakistan’s Agriculture**

**Statistical Profile - Women of Punjab**

**Agricultural Credit for Small Farmers in Punjab**

**Risk and Resource Allocation: A study of Small Farmers in Faisalabad District, Pakistan**

**Resource Mobilization and Financial Management: Experience of Local Bodies in Pakistan**

**Milch Animal Enterprise in Punjab**

**Implementing Decentralization Policies and Programmes: A Case Study of Integrated Rural Development Programme in Punjab, Pakistan**

**Compelled Child Labour in Punjab: A Case Study**
<table>
<thead>
<tr>
<th>Title</th>
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<tbody>
<tr>
<td>State of Development in Punjab: A District-wise Comparison</td>
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<td>State of Development in Punjab vis-à-vis Other Provinces</td>
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<td>Rural Development through Community Participation: Reflection on Pakistan's Experience</td>
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<tr>
<td><strong>Policy Briefs</strong></td>
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<tr>
<td>Is Higher Education in Pakistan Moving in the Right Direction?</td>
<td>Dr. Mumtaz Anwar and Amna Tariq Butt</td>
<td>September, 2017</td>
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<tr>
<td>Portrait of Change in Punjab: Translating Evidence from the Census 2017</td>
<td>Asima Ihsan, Faizan Ali, Muhammad Nadeem and Bushra Fatima</td>
<td>August, 2017</td>
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<tr>
<td>Punjab ADP 2017-18: Progressive and Promising</td>
<td>Muhammad Imran</td>
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<td>Punjab Budget 2017-18: Restoring Fiscal Fitness for Sustained Inclusive Growth and Development</td>
<td>Muhammad Imran</td>
<td>June, 2017</td>
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<tr>
<td>Agriculture and Textile Sector</td>
<td>Dr. Muhammad Jameel Khan</td>
<td>March, 2017</td>
</tr>
<tr>
<td>Texation System of Pakistan and its Impact on Economy</td>
<td>Dr. Tasneem Zafar</td>
<td>February, 2017</td>
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<tr>
<td>Growth Structure of Exports, Remittances and Foreign Direct Investment in Pakistan</td>
<td>Dr. Muhammad Nadeem Dogar</td>
<td>January, 2017</td>
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<tr>
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<td></td>
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<td>August, 2016</td>
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Kh. Hassan Mahmood  
Jun, 2016

Enhancing the Marketing and Export of Horticultural Fruits in Punjab  
Asima Ihsan  
May, 2016

Agricultural Subsidies in Punjab: Eliminating the Middlemen through Forward Contracts  
April, 2016

E-Government in Punjab The Way Forward  
March, 2016

Economic Benefits of Infrastructure Development - A Case of Metro Bus and Motorways  
February, 2016

Women Empowerment in Punjab  
January, 2016

Empowering Youth in Punjab  
December, 2015

Socio-economic Transformation through Roads Infrastructure in Punjab  
November, 2015

Inclusive Growth Strategy A Vision for Southern Punjab  
November, 2015

**Economic Forum**  
PERI has started a new series of economic forums under the umbrella of the Punjab Government. The first round of Punjab Economic Forum 2017 was held on 3rd-4th April 2017.

**Seminars**  
PERI arranges seminars on various socio-economic and policy issues and analytical tools. Some important seminars organized by PERI are as under:

How to Make Punjab’s Cities More Competitive

Organized in collaboration with Urban Unit and Planning and Development Department, Government of Punjab organised on on Friday October 20, 2017 at Crystal Hall, Faletti’s Hotel, Lahore.

This seminar aimed at bringing together academics, researcher and policy makers from Pakistan, including government officials, economic experts, technical professionals, and other stakeholders to discuss the possible policy measure to make the cities of Punjab robust and more competitive.

Social Policy Themes and Evaluation  
Speaker of the Seminar was Samuel Bickel, Regional Evaluation Advisor, UNICEF, South Asia.  
10 October, 2017.

National Macroeconomic Management and Role of Provinces  
Delivered by Dr. Waqar Masood  
Extension lecture at PC Hotel on September 26, 2017.

Challenges of Old Age in Pakistan  
The Lecture was delivered by Dr. Asghar Zaidi who is Professor in International Social Policy, University of Southampton.  
10 August, 2017

Revenue Optimization and Expenditures Preferences  
The seminar was held in Pearl Continental Hotel to solicit specific stance and recommendations on provincial budget 2017-18 by different stakeholders.  
8 May, 2017

Sharing experience of Changa Pani Project  
Delivered by Mr. Nazir Watoo at PERI  
01 August, 2016

Market Analysis for Value Chain and Olive Oil Consumption in Pakistan  
Launch of Study Report at Planning & Development Department  
25 May, 2016

Human Capital Investment and Economic Growth in Punjab
Delivered by Prof. Dr. Masudul Alam Choudhury, University of Toronto, Canada
25 April, 2016
Agriculture Price Policy: Building Equity, Efficiency and Food Security
Delivered by Dr. Asif Saeed Khan - University of Auckland, New Zealand
04 January, 2016
Willingness To Pay For Clean Water Supply Service: A Case Study of Sialkot
Delivered by Muhammad Hassam Shaid
2 December, 2015
Assuring High Quality Research for Evidence Based Policy Making
Delivered by Nikola Balvin (PysD) – Knowledge Management Specialist and “Ethics in Research and Evaluation” by Gabrielle Berman (PhD)
09 October, 2015
Effective Literature Review in Research
Held at PRI on 18 August, 2015.

Workshops / Trainings
The trainings/ workshops organized by the institute are as follows:

Baseline Survey for Implementation of WHO’s Model for “Home-Based Care of Newborns” in Bahawalnagar District
Organized by PERI in collaboration with UNICEF Friday, 16th February, 2018 at Faletti’s Hotel, Lahore.

PERI and UNICEF jointly organized a 3-days training workshop on Data mining from 4th – 6th December 2017 at Faletti’s hotel.
4th-6th December, 2017

Importance, Implication and Handling of Micro Data Set in Research
PERI organised two-days training workshop on 11th & 12th October at PERI office.

PERI organised Two days training workshop to equip participant with the ability to identify and analyze the costs and benefits of projects for all stakeholders and evaluate them with project financing techniques like cost-benefit ratios, NPV and IRR.
17-18 August, 2017

Report Writing and Data Analysis for Economist
Different officials, scholars and MS & PhD students took active participation in training from different Govt. and Private sectors.
13 July, 2017

GIS for Economist
2-days training workshop. The participants included researchers, faculty members from renowned universities, planning officers from government institutes, and students.
8-9 February, 2017

Data Analysis for Evidence-Based Policy-making
One day training workshop. The participants included researchers, faculty members from renowned universities, planning officers from government institutes, and students.
29 December, 2016

Mid Term Third Party Evaluation of the ADP Scheme “Expansion of Family Welfare Centre & Introduction of Community Based Family Planning Workers (2014-18)”
10 December, 2016

Review of Medical Teaching Facilities of all Public and Private Medical Teaching Institutions in Punjab
03 June, 2016

Capacity Building Workshop on ADP Formulation Process
Delivered by Mr. Javed Latif (Sr. Chief P&D), Monitoring and Evaluation of development projects by Dr. Sajjad Mubin (D.G M&E), PC-I Preparation by Mr. Khalid Sultan (Sr. Chief P&D) and Growth Strategy by Dr. Amanullah (Joint Chief Economist) held at Planning & Development Department on 23 April, 2016.

Impact Assessment of Continuum of Care (Green Book) Initiative
Organized a Training for the data collec-
Identification of Financial Requirements to Achieve the SDGs in Punjab

Action of study at Falettis Hotel, Egerton Road, Lahore
08 January, 2016

Policy Notes
Punjab Economic Forum Institutions for Growth & Equity 3-4 April, 2017

Promoting Policy Oriented Economic Research in Punjab