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PROGRAM DOCUMENT

ON A

PROPOSED CLEAN TECHNOLOGY FUND (CTF) LOAN

IN THE AMOUNT

US\$100 MILLION

TO THE REPUBLIC OF INDIA

FOR THE

SECOND DEVELOPMENT POLICY LOAN (DPL) TO PROMOTE INCLUSIVE GREEN  
GROWTH AND SUSTAINABLE DEVELOPMENT IN HIMACHAL PRADESH

April 21, 2014

Sustainable Development Unit  
India Country Management Unit  
Disaster Management and Climate Change Unit  
South Asia Region

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## CURRENCY EQUIVALENTS

(Exchange Rate Effective as of March 13, 2014)

Currency Unit = Indian Rupees (INR)

INR61.14 = US\$1

FISCAL YEAR

April 1 - March 31

## ABBREVIATIONS AND ACRONYMS

AGISAC	Aryabhata Geo-Informatics and Space Application Centre
BAU	Business As Usual
BPL	Below Poverty Line
BPS	Basis Points
CAAA	Controller of Aid, Accounts & Audit
CAT	Catchment Area Treatment
CDM	Clean Development Mechanism
CEA	Central Electricity Authority
CEIA	Cumulative Environment Impact Assessment
CFL	Compact Florescent Lamp
CO2	Carbon Dioxide
CPS	Country Partnership Strategy
CTF	Clean Technology Fund
DEST	Department of Environment, Science and Technology
DEA	Department of Economic Affairs
DoE	Directorate of Energy
DPL	Development Policy Loan
DPR	Detailed Project Report
EIA	Environmental Impact Assessment
EMP	Environnemental Management Plan
EU	European Union
FAC	Forest Advisory Committee
FDI	Foreign Direct Investment
FII	Foreign Institutional Investment
FRBM	Fiscal Responsibility and Budget Management
FY	Financial Year
GDP	Gross Domestic Product
GFC	Global Financial Crisis
GHG	Green House Gas
GHG	Greenhouse Gas
GIS	Geographic Information Systems
GoHP	Government of Himachal Pradesh
GoI	Government of India
GP	Gram Panchayat
GSDP	Gross State Domestic Product
GST	Goods and Services Tax
GW	Gigawatt
HDI	Human Development Index
HP	Himachal Pradesh
HP IGG DPL	Himachal Pradesh Inclusive Green Growth and Sustainable Development Development Policy Loan

HPDP	Himachal Pradesh Development Policy
HPDPL	Himachal Pradesh Development Policy Loan
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IGG	Inclusive Green Growth
IHR	Indian Himalayan Region
IPP	Independent Power Producer
IWM	Integrated Watershed Management
Kwh	Kilo Watt Hour
LADF	Local Area Development Fund
M&E	Monitoring and Evaluation
MDGs	Millennium Development Goals
Mn Tons	Million Tones
MOEF	Ministry of Environment and Forests
MoP	Ministry of Power
MoU	Memorandum of Understanding
MTFP	Medium-Term Fiscal Policy
MW	Mega Watt
Mwh	Mega Watt Hour
NFHS	National Family Health Survey
NLTA	Non-Lending Technical Assistance
NSS	National Sample Survey
NTPC	National Thermal Power Corporation
OECD	Organization for Economic Cooperation and Development
PAT	Perform, Achieve and Trade
PES	Payment for Ecological Services
PFM	Public Financial Management
PGCIL	Powergrid Corporation of India Ltd.
PIA	Pre-Implementation Agreement
PLF	Plant Load Factor
PSIA	Poverty and Social Impact Assessment
RBI	Reserve Bank of India
RE	Renewable Energy
REC	Renewable Energy Certificate
REDD+	Reducing Emissions from Deforestation and Forest Degradation
SCOD	Schedule Commercial Operation Date
SEA	Strategic Environmental Analysis
SEEA	System of Environment and Economic Accounts
SPCB	State Pollution Control Board
TSA	Tourism Satellite Accounts
SJVNL	Satluj Jal Vidyut Nigam Limited
TEC	Techno-Economic Clearances
ToR	Terms of Reference
UNSC	United Nations Statistical Commission
US	United States
WPI	Wholesale Price Index
VRE	Variable Renewable Energy

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**INDIA**  
**Second Development Policy Loan (DPL) to Promote Inclusive Green Growth and Sustainable Development in Himachal Pradesh**

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## SUMMARY OF PROPOSED PROGRAM

INDIA

### SECOND DEVELOPMENT POLICY LOAN (DPL) TO PROMOTE INCLUSIVE GREEN GROWTH AND SUSTAINABLE DEVELOPMENT IN HIMACHAL PRADESH

Borrower	Republic of India
Implementation Agency	Department of Environment, Science and Technology of the Government of Himachal Pradesh (GoHP)
Financing Data	Clean Technology Fund (Amount: US\$100 million )
Operation Type	Single-tranche programmatic development policy operation; second of a series of two operations
Pillars of the Operation And Program Development Objective(s)	<p>The objective of this Programmatic DPL series is to support a sub-set of GoHP's plan to improve the State's management of its natural resources across growth engines of the economy and to promote inclusive green growth and sustainable development.</p> <p>The pillars are: (i) Increased adoption of environmental and social parameters in hydropower development; (ii) Promotion of sustainable development through climate change-related adaptation and mitigation actions; (iii) Increased local communities participation in development of watershed management; (iv) Increased adoption of sound management practices in industrial development; (v) Increased adoption of sound environmental management practices in tourism development; and (vi) Improved integration of GIS mapping in decision making in the State.</p>
Result Indicators	<ul style="list-style-type: none"> <li>(i) 10 percent of operational projects that have minimum environmental flow policy applicable and which have adopted real time monitoring of environmental flows;</li> <li>(ii) 5,000 people have benefitted from direct cash transfer program;</li> <li>(iii) 4 Departments have begun integration of the state climate change strategy and action plan in their development plans and 1 Department has integrated PES in their operational strategy;</li> <li>(iv) 77 micro watershed catchments which have developed integrated community-led watershed development plans in place;</li> <li>(v) 20 percent of industries have adopted environmental management systems compared to baseline;</li> <li>(vi) 3 towns have adopted environmentally sustainable tourism development plans and practices; and,</li> <li>(vii) 9 Departments are using AGiSAC facilities for the strategy and planning.</li> </ul>
Overall risk rating	The risk associated with proposed loan is substantial.
Operation ID	P143032

## I. INTRODUCTION AND COUNTRY CONTEXT

1. **This operation is the second in the series of two Development Policy Loans (DPLs) that supports the Government of Himachal Pradesh (GoHP) to make a permanent paradigm shift to promote inclusive green growth and sustainable development.** It leverages financing from the Clean Technology Fund (CTF) in the amount of US\$ 100 million that follows on from DPL 1 which was approved by the Board on September 6, 2012 in the amount of \$100 million financed through IBRD. The program of DPL 1 and 2 are designed to help GoHP to develop a framework which, if followed, should ensure that energy generation is greener, the dependence on fossil fuels is lower and the impacts on the environment and people are much reduced. This Program will assist GoHP in transformative actions in sectors that are key engines of growth (i.e. energy, industry and tourism). These transformative actions include policy reforms and institutional reforms based on the piloting of innovative practices. DPL 2 will be the second and concluding part of the programmatic series following the IBRD-provided budgetary support of US\$ 100 million, which is presently being implemented.

2. **India's remarkable growth record has been constrained by a degrading environment and growing scarcity of natural resources.** Mirroring the size and diversity of its economy, environmental risks are wide ranging and are driven by both poverty and prosperity. Much of the burden of growth and development is falling upon the country's natural assets and its people. Environmental sustainability could become the next major challenge as India surges along its growth trajectory.

3. **Climate change poses an additional risk to India's long term development prospects.** By mid-century, the mean annual temperature in India is projected to increase in the range of 1.1° to 2.3° C under the moderate climate change scenarios of the Intergovernmental Panel on Climate change (IPCC) (A1B Scenario) with anticipated deterioration of agro climatic conditions. All the Global Circulation Models project that precipitation intensity and heavy precipitation events will increase, suggesting greater variability in rainfall. One of the implications is that agro-climatic conditions could deteriorate across the country. In addition, further striking impacts are likely to come from the melting Himalayan glaciers which sustain agriculture, livelihoods and industry throughout the Gangetic plains.

4. **Projections<sup>1</sup> indicate that the largest share of GHG emission in India will continue to be from the power sector.** India's per capita energy consumption levels are low, but are expected to grow substantially in the coming decades. Economic growth, increasing prosperity and urbanization, and a rise in per capita consumption are factors that are contributing to a substantial increase in the total demand for energy. The Government of India (GoI) promotes universal access to energy and aims to achieve an annual minimum consumption of 1,000 kWh for all its citizens. Rising energy demands have far reaching implications for the country's greenhouse gas (GHG) emissions trajectory. For instance, the Expert Group on Low Carbon Strategies for Inclusive growth (chaired by the Member Planning Commission) indicates that should India wish to sustain 9 percent economic growth

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<sup>1</sup> Interim Report of Expert Group on Low Carbon Strategies for Inclusive growth, Planning commission, GoI, May 2011.

until 2020, it will need to more than double its installed capacity (from 172 GW to 377 GW). Coal is expected to continue to supply the majority of India's energy needs. It needs to be however noted that on a per capita basis these emissions will still be far below that in developed countries.

5. **By the end of the 13th Five-Year Plan (2017-2022), India has ambitious targets to add 40 to 55 GW of additional renewable energy capacity.** By 2032, GoI intends to harness the full potential of hydropower, with an interim target of 10.9 GW in the 12th Five-year Plan. If successfully implemented, with due care for social and environmental impacts, the planned hydropower expansion could alter the baseline trajectory for emissions from the power sector, because it offers a feasible clean alternative to both base load and peaking fossil-based power generation plants. If this expansion were to fall short, India would most likely be compelled to further expand its coal-based generation capacity. This would pose a significant risk to the government's efforts to promote sustainable development and inclusive green growth. This operation is therefore helping to mitigate this risk.

6. **To support its clean energy objectives, GoI presented an Investment Plan to the Trust Fund Committee of the Clean Technology Fund (CTF), which was endorsed by the Committee on November 4, 2011.** CTF Investment Plan for India was cited for its innovation and transformative potential, as it seeks to build enabling frameworks for renewable energy and energy efficiency at cost and at scale. GoI's priorities under the CTF Investment Plan for India include this Program as well as support to the Jawaharlal Nehru National Solar Mission and support to the National Mission on Enhanced Energy Efficiency. In the CTF Investment Plan for India, GoI successfully argued that hydropower, solar and energy efficiency have a significant role to play to achieve low carbon growth as a part of its sustainable development objectives.

## **DEVELOPMENT CHALLENGES IN HP**

7. **HP is richly endowed with natural resources that provide economically valuable environmental services for much of the country.** The state is home to five river basins, and it serves as a watershed that is critical to the livelihoods of more than 200 million people in Haryana, Punjab, Uttar Pradesh, and Rajasthan. It is one of the main sources of hydropower for the country. The watersheds of HP also act as an important carbon sink for greenhouse gases. Altitudinal variation has generated habitats that host immense numbers of species, which demonstrate a high degree of endemism – that is species only found in these ecosystems. Parts of the region are classified as global biodiversity hotspots –signaling scientific concern for the unrelenting pressures on the Himalayan ecosystem. There is also considerable potential for attracting higher value added tourism in the state, with a unique combination of attractions that includes natural assets, historic architecture (Shimla) and cultural and religious attractions.

8. **However, distinguished by its geography, HP faces certain unique development challenges.** With altitudes ranging from 400m to almost 7,000m above sea level, many parts of the state are inaccessible and uninhabitable. Rugged terrain, and high levels of forest cover contribute to low availability of land for agriculture, and net sown area is only about 15 percent. Several rivers that sustain economic livelihoods and industry in the plains have bestowed an enormous endowment of hydropower potential to the state. By country standards, HP is sparsely populated (about 6.8 million people) with the state's population density at around 110 per sq. km., which is significantly lower than the national average of

320 per sq. km. Recognizing these development constraints, the GoI has classified the state as a “special category” jurisdiction, which gives GoHP access to special grants from the Central Government and other incentives that have been instrumental in its development.

9. **Despite its structural disadvantages, HP has performed admirably on many measures of human development.** The state has some of the best indicators for development in India and is on track to meet the majority of its Millennium Development Goals (MDGs). From its inception in 1971, it has had a higher per capita income and better social indicators than much of the country. A shift from infrastructure to social investments has contributed to the state’s impressive achievements. This has also been made possible by supportive government policies, a transparent and accessible administration, an implicit social compact and cohesion, and high levels of investment in human capital. But certain challenges do remain, i.e. notably that of promoting inclusive development for disadvantaged groups in remote areas.

10. **The sustainability of HP's success for the future will depend on addressing three major transitions.** The first is to shift the growth strategy in HP from one that is still far too heavily dependent on public expenditure, to an increasing focus on the broad-based contribution from other sources of growth, for instance, its natural resources and tourism sectors, with an enabling environment for the private sector. The second is to create productive employment opportunities for HP's youth and increasingly educated labor force, so that reliance on the public sector as an employer of last resort goes down. The third critical transition that HP will need to make is to better manage its environment and natural resources. **To support the transition to greater environmental and sustainable management of its natural resources,** through this series of DPLs, GoHP will continue to promote inclusive green growth and the environmental and social sustainability in the areas of Energy, Industry and Tourism and which is consistent with the objectives of the CTF. **This second DPL, for an additional US\$ 100 million of CTF resources, is intended to further enhance policy and institutional reform measures initiated in the first DPL.**

## II. MACROECONOMIC POLICY FRAMEWORK

### A. RECENT ECONOMIC DEVELOPMENTS<sup>2</sup>

11. **India’s GDP growth slowed to 4.5 percent in FY2012-13 from an average of 8.0 percent during the last five years. Growth in real GDP at factor cost came in below 5 percent for the third quarter in a row in Q1 FY2013-14.** This marks a sixth consecutive quarter of sub-6 percent growth, making the current episode the most persistent slowdown in nearly two decades. While the growth in manufacturing fell sharply, growth in services strengthened somewhat and growth in agriculture more than doubled due to a favorable monsoon.

12. **The Indian rupee fell to historic lows in August 2013 before staging a recovery in September.** Similar to other emerging markets, the Indian rupee came under stress following the concerns of an early “tapering” of the quantitative easing or asset purchasing program. As global investors withdrew US\$15 billion of portfolio investment from Indian markets in June-

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<sup>2</sup> Data sources: Central Statistics Office, Reserve Bank of India, Ministry of Finance, Department of Commerce and Industries, Economic Division of the Department of Economic Affairs, and World Bank Staff estimates.

August, the rupee fell by 18 percent vis-à-vis the US\$ during this period and touched an all-time low of Rupees 68.4 to the US dollar on August 28, 2013. However, the rupee, which closely mirrored US Treasury bond yields, appreciated more than 7 percent between August and September as market fears were allayed by the Fed's September decision to continue asset purchases as well as several steps taken by the GoI and the Reserve Bank of India.

**13. After reaching a record high in Q3 FY2012-13, the current account deficit improved in the fourth quarter.** The current account balance has gone through a major shift in the past decade, deteriorating from a surplus of 0.2 percent of GDP in the five years before the global crisis (FY2003-2007) to an average deficit of 2.6 percent of GDP during FY2008-2012, and reaching consecutive record highs of 4.2 and 4.8 percent of GDP in FY2011-12 and FY2012-13. The merchandise trade deficit, which accounted for the majority of the widening in the current account gap, rose to 10.6 percent of GDP in FY2012-13 from 10.2 percent in the previous year, as merchandise exports (in US\$) fell by 1.1 percent y-o-y while imports increased by 0.5 percent.

**14. Financing of the current account deficit has shifted towards portfolio investment and trade credits.** Compared with FY2011-12, when FDI financed 28 percent of the current account deficit, the share of FDI in financing the current account gap declined to 22.5 percent in FY2012-13, replaced by greater contributions from portfolio flows, trade credits, and deposits by non-resident Indians (NRI). Strong portfolio inflows – which rose from 0.9 to 1.5 percent of GDP during the fiscal year – played an increasingly important role in financing the deficit while external commercial borrowing (ECB) remained stable at 0.5 percent of GDP. Even with a 10 percent y-o-y decrease in FDI (in US\$), total capital inflows rose by nearly 32 percent, comfortably financing the current account deficit and adding almost US\$4 billion to the stock of international reserves.

**15. According to the Economic Division of the Government of India.** Headline wholesale price index (WPI) inflation which was 8.9 percent in 2011-12 has moderated to 7.4 percent in 2012-13, and further to a 9 months low of 4.7 percent in February 2014 on the back of lower food inflation. The WPI inflation of food (primary food and manufactured food with weight of 24.3 percent) has also significantly declined to a 25 months low of 5.6 percent in February 2014 on account of lower vegetable prices<sup>3</sup>. The non-food manufactured products (core) inflation after remaining below 3 percent for most months<sup>4</sup>, in the current financial year has shown an uptick in January 2014 and February 2014. However, the momentum in food and core inflation has been showing moderation in the last few months. The average WPI headline inflation is expected to be around 5.9 percent for 2013-14 and might further decline to 5.2-5.5 percent in 2014-15.

**16. The central government's FY2012-13 fiscal deficit came in better than expected, but FY2013-14 targets have come under pressure.**<sup>5</sup> Revised data show that the central government's fiscal deficit in FY2012-13 reached 4.9 percent of GDP, well below last October's target of 5.3 percent and better than the 5.2 percent estimate in March. However,

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<sup>3</sup> The headline price inflation, driven primarily by food prices, was 6.6 percent year-on-year during June and December 2013.

<sup>4</sup> Core inflation was 4.9 percent during FY2012-13 on the average, but decelerated to 2.7 percent during December 2013.

<sup>5</sup> The numbers presented here follow the Government of India's definition of the deficit which includes disinvestment receipts and revenue from 2G telecom license auctions.

deficit targets have come under pressure in FY2013-14. According to the Controller General of Accounts, the central government incurred a fiscal deficit of 4.5 percent of GDP during the first eight months of FY2013-14, equivalent to more than 90 percent of its fiscal deficit target for the year. In comparison, fiscal performance during the first eight months of FY2012-13 was closer to target as the authorities ran a fiscal deficit of 4.1 percent of GDP during that time. A significant portion of the shortfall can be attributed to lower tax collection due to a slower pace of economic activity.

## **B. MACROECONOMIC OUTLOOK AND DEBT SUSTAINABILITY**

17. **The economy is likely to expand by 4.9 percent in FY2013-14<sup>6</sup>.** The expected outturn would bring growth to its lowest point since FY2002-03, when real GDP increased by 3.9 percent. However, as financial markets stabilize, exporters continue to take advantage of improvements in external competitiveness following the depreciation of the rupee, recovery in the manufacturing sector continues, and delayed investment projects begin to come on stream, activity is expected to pick up strongly in the last six months of the fiscal year, rising above 6.0 percent in Q4 FY2013-14. The recovery will also be supported by a pick-up in agricultural activity due to heavy and early monsoon rains. Key macroeconomic indicators are presented in Table 1.

18. **Achievement of fiscal targets is likely to require further expenditure restraint.** A repeat of better-than-expected FY2013 fiscal performance by the central government is likely to be more challenging in FY2014 as the headroom gained through diesel subsidy reform thus far has been wiped out by the depreciation in the rupee. As the scope for improved tax collection is likely to be limited given the subdued pace of activity in the first half of FY2014, expenditure restraint particularly further progress to contain the fuel subsidy bill, will be key to maintaining good fiscal performance. Under these assumptions, the general government deficit is likely to rise somewhat to 7.3 percent of GDP in FY2014 before declining to 7.1 percent of GDP in FY2015.

19. **Inflationary pressures are likely to moderate further.** The downward momentum in core WPI inflation, observed throughout calendar 2013, is expected to continue in FY2013-14. Six consecutive quarters of sub-6 percent growth have allowed for an opening of the output gap, which is likely to limit inflationary pressures even with the expected acceleration in economic activity during the forecast period. WPI inflation is expected to average 5.3 percent in the current fiscal year and decelerate further to 5.2 percent in FY2015 as pressure from food prices declines due to an improvement in agricultural output.

20. **The current account deficit is expected to narrow** to 4.1 percent of GDP in FY2013-14 and improve further to 3.7 percent of GDP in FY2014-15 due to a combination of factors – a weaker currency would support revival of exports and dampen imports, and improving labor market conditions in the US could further support the current account balance via stronger remittances. Although exports are expected to rise overall, export response in the manufacturing sector could be somewhat muted by rising costs of imported intermediate inputs, especially as metal prices are expected to remain elevated throughout the forecast period. Similarly, while the depreciation of the rupee is likely to dampen demand for imports, the scope for import compression is limited by a high (45 percent) share of fuel and

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<sup>6</sup> This expectation is based on recent data from the Economic Division of the Department of Economic Affairs. The expectation appears to have improved from the early February 2014 estimate of 4.7 percent.

raw material imports in total. These factors suggest that while the trade deficit is likely to narrow in FY2013-14, the improvement will be gradual.

21. **The debt-to-GDP ratio could rise for a second year in a row, but is expected to resume a downward path in the medium term.** Most of the decline in the debt-to-GDP ratio over the past decade can be attributed to a favorable macroeconomic environment and particularly rapid GDP growth. As growth slowed markedly in FY2012-13, the general government debt-to-GDP ratio is estimated to have risen by one percentage point to 68.7 percent of GDP. Under the growth, inflation, and fiscal deficit scenario delineated in the previous discussion, the debt-to-GDP ratio is likely to rise further in FY2013-14, reaching 71 percent of GDP. Thereafter, under the assumption that growth accelerates, the central government continues its fiscal consolidation efforts, and state governments remain on the adjustment path recommended by the 13th Finance Commission, the debt-to-GDP ratio is expected to resume its earlier downward trend, albeit at a slower pace than before.

22. **The macroeconomic policy framework for the current operation is considered adequate.** The largely positive near- and medium-term outlook is, however, conditional on continued improvements in the policy environment and is subject to important downside risks. The current macroeconomic environment of a trough in growth and rising external vulnerabilities offers a window of opportunity for the authorities to strengthen the foundations for higher long-term growth. The baseline scenario of acceleration in growth in the second half of FY2013-14 and further improvements thereafter builds in the assumptions of continued progress on the policy reform agenda as well as a benign global environment. Steps taken by the authorities to clear the pipeline of stalled and shelved investment projects – e.g., by setting up the Cabinet Committee on Investment in December 2012 will need to be followed up with additional actions and close monitoring of delays in project preparation to ensure that the rebound in investment envisioned in the forecast materializes.

**Table 1: Key Macroeconomic Indicators**

	2008	2009	2010	2011	2012	2013	2014
	-09	-10	-11	-12	-13	-14	-15
					1st RE	AE	Proj.
<b>Real Income and Prices (% change)</b>							
Real GDP (at factor cost)	6.7	8.6	8.9	6.7	4.5	4.9	6.2
Agriculture	0.1	0.8	8.6	5.0	1.4	4.6	2.0
Industry	4.4	9.2	7.6	7.8	1.0	0.7	5.2
Of which Manufacturing	4.3	11.3	8.9	7.4	1.1	-0.2	4.4
Services	10.0	10.5	9.7	6.6	7.0	6.9	7.6
Real GDP (at market prices)	3.9	8.5	10.3	6.6	4.7	4.6	6.7
<b>Prices (average)</b>							
Wholesale Price Index	8.1	3.8	9.6	8.9	7.4	5.3	5.2
Consumer Price Index	9.1	12.4	10.4	8.4	10.4	...	...
GDP Deflator	8.5	6.1	9.0	8.5	7.1	7.1	5.2
<b>Consumption, Investment and Savings (% of GDP)</b>							
Consumption 1/	70.8	70.9	69.5	73.7	74.6	74.4	72.7
Public	10.9	11.9	11.4	11.6	11.8	12.2	12.2
Private	59.9	59.0	58.0	62.1	62.7	62.3	60.5
Investment 2/	32.3	31.7	31.7	30.6	29.6	29.6	30.7
<b>External Sector</b>							
Total Exports (% change in current US)	15.0	-5.6	36.7	18.7	0.04	15.7	21.9
Goods	13.7	-3.5	40.4	20.9	-1.0	17.1	23.7
Services	17.3	-9.4	29.8	14.2	2.4	12.9	18.3
Total Imports (% change in current US)	16.6	-0.03	28.7	24.5	0.9	7.8	18.2
Goods	19.8	-2.6	27.6	30.3	0.5	8.8	19.5
Services	1.1	15.3	34.2	-2.9	3.2	1.8	9.5
Current Account Balance (% of GDP)	-2.3	-2.8	-2.7	-4.2	-4.7	-4.1	-3.7
Foreign Investment (US billion)	8.3	50.4	42.1	39.2	46.7	41.6	47.5
Direct Investment, net	22.4	18.0	11.8	22.1	19.8	20.0	26.5
Portfolio Investment, net	-14.0	32.4	30.3	17.2	26.9	21.6	21.0
Foreign Exchange Reserves (US billion) 3/	241.4	254.7	274.3	260.1	259.7	257.2	263.2
<b>General Government Finances (% of GDP)</b>							
Revenue 4/	19.8	18.7	20.3	19.5	20.7	19.7	19.7
Expenditure	28.4	28.6	27.5	28.1	28.3	27.0	26.8
Deficit	8.3	9.3	6.9	8.1	7.2	7.3	7.1
Total Debt 5/	74.9	73.3	67.9	67.9	68.7	70.8	70.5
Domestic	69.8	68.6	63.4	63.2	64.3	66.4	66.7
External	5.1	4.7	4.5	4.7	4.4	4.5	3.8

AE: Advanced Estimates 1RE: First Revised Estimates

Notes:

1/ Consumption is equal to final consumption expenditure plus valuables. History includes national accounts' discrepancies.

2/ Gross fixed capital formation

3/ Excluding gold, SDR and IMF reserve position

4/ Includes receipts from 3G spectrum auctions and disinvestment

5/ General government liabilities include states' holding of short-term central govt securities

Sources:

Central Statistics Office, Reserve Bank of India,  
Data provided by the Economic Division of the Department of Economic Affairs at Negotiation

## C. FISCAL SITUATION OF HIMACHAL PRADESH

23. **HP's fiscal deficit widened significantly in FY2008-09 and FY2009-10 because of external shocks and the implementation of the 6<sup>th</sup> Pay Commission's recommendations.** The 6<sup>th</sup> Pay Commission's recommendations implemented by the GoI and most state governments substantially affected the GoHP's capacity to limit expenditure on salaries and pensions.<sup>7</sup> Additional fiscal stress arose out of policy reactions to external shocks. Rising prices led to higher subsidies and cost of living indexed wage payments to civil servants and the economic slowdown that was a fall-out from the Global Financial Crisis (GFC) led to fiscal stimulus measures comprising tax reductions, higher spending, and higher borrowing limits for states. In FY2008-09 and FY2009-10, the fiscal deficit expanded to 5.4 percent and 5.8 percent of GSDP, respectively, from 1.8 percent in FY2007-08 and the current deficit expanded to 1.2 percent in FY2009-10 from 0.3 percent in FY2008-09.

24. **GoHP managed to contain its fiscal deficit to 3.5 percent in FY2010-11 and 2.6 percent in FY2011-12.** The gross fiscal deficit of the state was contained at 3.5 percent of GSDP for the FY 2010-11. This was aided by a non-debt receipt of Rs. 645 cores (compensation from the Himachal Pradesh Infrastructure Development Board for its equity investment funded by Government in state generation and transmission companies), and own tax revenue growth of 41 percent. It improved further to 2.6 percent in FY 2011-12 but worsened to 4.3 percent in 2012-13. This is a violation of the state's Fiscal Responsibility and Budget Management (FRBM) law that targets a 3 percent Gross Fiscal Deficit. Because of the fiscal pressure, capital outlay trended downwards to 10 percent of total expenditure in FY2012-13 from a high of 18 percent in FY2008-09. Non-wage expenditure's share in total expenditure has also fallen to less than 10 percent of total expenditure.

25. **Widening of the deficit would have been worse without stringent expenditure control measures that have been in place over a number of years.** Although the tax revenue increased initially over 2007-08 to 2009-10 following the increased use of IT in tax administration such as e-returns, and e-registration which helped broaden the tax base, the gains have since tapered off. Tax revenue, however, has slid from a high of 6 percent of GSDP in 2009-10 to 3 percent of Gross State Domestic Product (GSDP) in 2011-12. With non-tax revenue also tapering off slightly after 2010-11, overall own revenue declined from 10.2 percent of GSDP in 2010-11 to 8.3 percent in 2012-13. The main expenditure containment measures in place are: (a) a general ban on appointments without the state's Council of Ministers approval and creation of a surplus pool; (b) approved new appointments made on contract basis against vacant functional posts or by transfer from the surplus pool; (c) outsourcing of services; (d) reduction in budgetary support to Public Sector Undertakings along with disinvestment and closure; and (e) a moderate increase in the state plan size. GoHP has paid all the arrears of the sixth pay commission taking some pressure off. However, a spurt in salary expenditure (mainly inflation indexed pay increase) in 2012-13 is again posing fiscal management challenges showing the limits of the expenditure side strategy in keeping the fiscal deficit under control, if revenue loses buoyancy.

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<sup>7</sup>GoHP follows the Punjab Pay Award. The total impact from the increase in pay and pension for the period 2010-11 to 2014-15 was projected at Rs. 59.29 bn, with an arrears component of Rs. 27.62 bn (as the revised pay and pension are effective from January 1, 2006)—making for total additional liabilities of Rs. 86.91 bn.

26. **The state has its Fiscal Responsibility and Budget Management (FRBM) legislation in line with the fiscal targets set by the Thirteenth Finance Commission.** The medium term fiscal policy (MTFP) statement of the GoHP provides indication of the fiscal targets going up to FY2013-14. They follow the targets set by the Thirteenth Finance Commission. However, meeting them is proving to be a challenge. The fiscal deficit target of 3 percent of GSDP to be achieved by FY2012-13 has not been met. Total outstanding debt to GSDP is likely to have declined to 40 percent by FY2012-13 from 38 percent in FY2013-14.

27. **The 13<sup>th</sup> Finance Commission awarded relatively smaller grants to HP, as compared to its predecessors, in exchange for higher tax devolution.** GoHP's strategy for increasing own revenue relies largely on its non-tax sources, generated from royalty proceeds from private hydro projects in the form of free electricity for sale by the Government. The revenue from this source is dependent on the supply of free energy from hydro projects, and the market price. Projects over 2000 MW capacity are expected to come on stream and the state is relying on revenue from these as well to plug the gap from tapering central revenue deficit grants. However, actual revenue growth from the hydro sector will depend on both demand side growth as well as the average tariff realized. In 2012-13 non-tax revenue actually fell demonstrating the risk embedded in revenue from this source as well. The simplest primary expenditure adjustment possible is through a cut in capital expenditure and non-wage operations and maintenance expenditure. Capital expenditure declined to 2.8 percent of GSDP in FY2011-12 and further to 2.5 percent of GSDP in 2013-14 from 4.5 percent in FY2009-10 and non-wage operations and maintenance expenditure to 2.5 percent in FY2012-13 from 3.2 percent in FY2009-10. The strategy may be viable for a short period of time but cannot be sustained over a longer term without significantly affecting the quality of services and raising capital expenditure for restoration of assets. For FY2013-14, to contain the Gross Fiscal Deficit, the revenue is projected to increase by about 13 percent and expenditure by 8 percent. The fiscal deficit is targeted at 2.8 percent of GSDP and the revenue surplus at 0.07 percent of GSDP in FY2013-14. Debt to GSDP is targeted at 38 percent of GSDP. Fiscal outcomes are shown in Table 2.

28. **The statement on compliance with the state's FRBM Act, 2005** tabled in the state legislature provides the state's medium-term fiscal policy strategy. This strategy is as follows:

- Ensure continued buoyancy in the state's own tax and non-tax receipts.
- Faster implementation of hydropower projects in HP to attract additional hydropower royalty, with attention to environmental and social sustainability.
- Nonfunctional (less critical to service delivery) posts shall not be created or allowed to be filled up.
- Non-merit subsidies to be targeted for elimination.
- User costs for services provided by the governmental agencies shall be introduced in a progressive manner.

29. **Most of these measures will have an impact over the longer term,** if followed through. The changeover to goods and services tax (GST) and its impact on the fiscal position will be a significant event as will be the Fourteenth Finance Commission's award.

30. **While the overall fiscal framework is considered adequate for this operation,** fiscal management will continue to be challenging at least until the Pay Commission arrears are paid out. The next Finance Commission's award is an event that will influence GoHP's fiscal trajectory over the next five years. The inter-governmental fiscal arrangements in India

are well established, transparent, sufficient and generally adequate. GoHP had managed the difficult fiscal fallout from the impact of the Pay Commission payout and rising inflation indexed wages through a strategy of increasing own tax revenue and reduction in capital and operations and maintenance expenditure. However, the last year has seen a fiscal trend reversal with loss of revenue buoyancy and the fiscal deficit exceeding the FRBM ceilings. GoHP's MTFP acknowledges that the tapering centrally devolved Finance Commission grant will constrain fiscal space and the FRBM outlines the state's primary strategies to meet the challenge. Three future events will have a significant bearing on fiscal sustainability in the medium term: (a) commissioning of hydro projects and the electricity market; (b) the next Finance Commission's award; and (c) the transition to GST. Until such time the fiscal space improves, the options before Government are limited to managing expenditure in the short term (chiefly managed reduction in capital expenditure with longer term negative consequences) and improving own revenue resources over the medium term. While this may affect investment expenditure in the short term, service delivery in key areas may suffer over the longer term if adequate fiscal space is not found quickly. Meanwhile the state has managed to keep service levels going through public sector reform process.

31. **Given the above assessment, the team finds the overall fiscal framework and intergovernmental fiscal arrangements with central government to be adequate for the purpose of this operation.**

**Table 2: Fiscal Outcomes**

	2007-08 (Actuals)	2008-09 (Actuals)	2009-10 (Actuals)	2010-11 (Actuals)	2011-12	2012-13	2013-14 (BE)
<i>(Rs in Crore)</i>							
<b>Revenue</b>	<b>9141.60</b>	<b>9308.00</b>	<b>10346.40</b>	<b>12710.61</b>	<b>14542.86</b>	<b>15598.12</b>	<b>17700.94</b>
<b>State's Own Revenue</b>	<b>3780.60</b>	<b>3998.70</b>	<b>4357.60</b>	<b>5337.69</b>	<b>6022.05</b>	<b>6002.98</b>	<b>7765.85</b>
Tax	1958.20	2242.50	2574.50	3642.38	4107.92	4626.15	5372.98
Non-Tax	1822.40	1756.20	1783.10	1695.31	1914.13	1376.83	2392.87
<b>Central Taxes and Grants</b>	<b>5361.00</b>	<b>5309.30</b>	<b>5988.80</b>	<b>7372.92</b>	<b>8520.82</b>	<b>9595.14</b>	<b>9935.09</b>
Shared Taxes	793.70	837.50	861.60	1715.35	1998.37	2282.02	2716.72
Grants	4567.30	4471.80	5127.20	5657.57	6522.45	7313.12	7218.37
<b>Non-debt Capital Receipt</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>645.85</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Non-Interest Expenditure</b>	<b>8014.60</b>	<b>9691.66</b>	<b>10891.00</b>	<b>13239.27</b>	<b>14046.22</b>	<b>16206.63</b>	<b>17593.64</b>
Salaries (Including GIA for Education)	3226.60	3642.80	4267.40	5486.70	5736.85	6639.59	7394.86
Pensions & Retirement Benefits	949.30	1153.90	1348.50	2105.39	2216.81	2746.84	2839.92
Non-Wage O & M	1221.60	1338.40	1388.10	1521.85	1629.67	1782.21	2166.02
Other Revenue Expenditure	407.20	434.40	887.80	996.08	856.07	1064.07	1063.24
Subsidies and Transfers	784.30	975.00	1019.70	1186.29	1328.87	1571.6	1751.44
Capital Outlay	1413.50	2079.10	1943.70	1788.99	1809.83	1954.80	2063.45
Net Lending	12.10	68.06	35.80	153.97	468.12	447.48	314.71
<b>HP Primary Surplus (+)/Deficit(-)</b>	<b>1127.00</b>	<b>-383.66</b>	<b>-544.60</b>	<b>117.19</b>	<b>496.65</b>	<b>-608.51</b>	<b>107.30</b>
Interest Payments	1702.70	1893.60	1958.90	1950.43	2129.71	2369.90	2431.49
<b>Total Expenditure</b>	<b>9717.30</b>	<b>11585.26</b>	<b>12849.90</b>	<b>15189.70</b>	<b>16175.92</b>	<b>18576.53</b>	<b>20025.13</b>
<b>GoHP Revenue Surplus(+)/Deficit(-)</b>	<b>849.90</b>	<b>-130.10</b>	<b>-524.00</b>	<b>-536.13</b>	<b>644.89</b>	<b>-576.13</b>	<b>53.97</b>
<b>GoHP Fiscal Surplus(+)/Deficit(-)</b>	<b>-575.70</b>	<b>-2277.26</b>	<b>-2503.50</b>	<b>-1833.24</b>	<b>-1633.06</b>	<b>-2978.41</b>	<b>-2324.19</b>
Debt Stock	21241.80	23150.20	23163.70	24960.85	26494.07	28618.00	31066.00
GSDP	31974.00	42000.00	43086.00	52426.00	63812.00	72076.00	82167.00
<b>Total Expenditure</b>	<b>9717.30</b>	<b>11585.26</b>	<b>12849.90</b>	<b>15189.70</b>	<b>16175.92</b>	<b>18576.53</b>	<b>20025.13</b>

<i>Percent GSDP</i>	<b>Fiscal Outcomes</b>						
	<b>2007-08 (Actuals)</b>	<b>2008-09 (Actuals)</b>	<b>2009-10 (Actuals)</b>	<b>2010-11 (Actuals)</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14(BE)</b>
<b>Revenue State's Own Revenue</b>	<b>28.59</b>	<b>22.16</b>	<b>24.01</b>	<b>24.24</b>	<b>22.79</b>	<b>21.64</b>	<b>21.54</b>
<b>Revenue</b>	<b>11.82</b>	<b>9.52</b>	<b>10.11</b>	<b>10.18</b>	<b>9.44</b>	<b>8.33</b>	<b>9.45</b>
Tax	6.12	5.34	5.98	3.27	3.13	3.17	3.31
Non-Tax	5.70	4.18	4.14	6.95	6.44	6.42	6.54
<b>Central Taxes and Grants</b>	<b>16.77</b>	<b>12.64</b>	<b>13.90</b>	<b>14.06</b>	<b>13.35</b>	<b>13.31</b>	<b>12.09</b>
Shared Taxes	2.48	1.99	2.00	3.27	3.13	3.17	3.31
Grants	14.28	10.65	11.90	10.79	10.22	10.15	8.78
<b>Non-debt Capital Receipt</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1.23</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Non-Interest Expenditure</b>	<b>25.07</b>	<b>23.08</b>	<b>25.28</b>	<b>25.25</b>	<b>22.01</b>	<b>22.49</b>	<b>21.41</b>
Salaries (Including GIA for Education)	10.09	8.67	9.90	10.47	8.99	9.21	9.00
Pensions & Retirement Benefits	2.97	2.75	3.13	4.02	3.47	3.81	3.46
Non-Wage O & M	3.82	3.19	3.22	2.90	2.55	2.47	2.64
Other Revenue Expenditure	1.27	1.03	2.06	1.90	1.34	1.48	1.29
Subsidies and Transfers	2.45	2.32	2.37	2.26	2.08	2.18	2.13
Capital Outlay	4.42	4.95	4.51	3.41	2.84	2.71	2.51
Net Lending	0.04	0.16	0.08	0.29	0.73	0.62	0.38
<b>HP Primary Surplus (+)/Deficit(-)</b>	<b>3.52</b>	<b>-0.91</b>	<b>-1.26</b>	<b>0.22</b>	<b>0.78</b>	<b>-0.84</b>	<b>0.13</b>
Interest Payments	5.33	4.51	4.55	3.72	3.34	3.29	2.96
<b>GoHP Revenue Surplus(+)/Deficit(-)</b>	<b>2.66</b>	<b>-0.31</b>	<b>-1.22</b>	<b>-1.02</b>	<b>1.01</b>	<b>-0.80</b>	<b>0.07</b>
<b>GoHP Fiscal Surplus(+)/Deficit(-)</b>	<b>-1.80</b>	<b>-5.42</b>	<b>-5.81</b>	<b>-3.50</b>	<b>-2.56</b>	<b>-4.13</b>	<b>-2.83</b>
Debt Stock	66.43	55.12	53.76	47.61	41.52	39.71	37.81

### III. GOVERNMENT'S PROGRAM

32. **GoHP is developing an innovative and ambitious sustainable development policy program.** The center piece of this program is to institute a paradigm shift towards an environmentally sustainable model of economic growth. Recognizing the scope for fueling growth through its natural assets, GoHP has introduced a host of initiatives designed to enhance environmental stewardship and to build a new platform for sustainable growth.

33. **This two-part programmatic DPL series is designed to support a subset of GOHP's plan that involves enabling policies, institutional actions and piloting of innovative practices that are deemed catalytic and will provide the long-term foundational changes that are needed to achieve this objective:**

- Adoption of environmentally sustainable and socially responsible hydropower development in the ongoing hydro development program;
- Promotion of sustainable development through climate change-related adaptation and mitigation actions;
- Empowering local communities to promote watershed management;
- Promotion of an environmentally sustainable industrial development;

- Implementation of an environmentally sustainable tourism program; and
- Instituting mechanisms for integration of spatial GIS based information in informed decision making.

The CTF-funded Second Inclusive Green Growth and Sustainable Development DPL will be supporting GoHP in transformative policy actions in the sectors that are key engines of growth (i.e. energy, industry and tourism). These transformative actions include policy reforms and institutional reforms based on the piloting of innovative practices.

#### **A. Adoption of environmentally and socially sound practices in the ongoing Hydro Development Plan**

**34. Hydropower is a priority under India’s 12th Five-year Plan, which has the ambitious goal of building 10.9 GW of this renewable capacity over 2012-17.**<sup>8</sup> HP with around 15 percent of the national hydropower potential and over 33 percent hydropower potential in the Northern Region has a critical role to play in helping India achieve its planned targets<sup>9</sup>. The development of hydropower has often been affected by concerns around environmental and social aspects of hydropower development. Developing a replicable and robust mechanism that addresses the social and environmental challenges of hydropower is therefore especially important given the criticality of hydropower development in India.

**35. Recognizing the criticality of hydropower and to address environment and social concerns voiced by stakeholders around hydropower development, GoHP has taken a number of steps.** GoHP formulated its own Hydropower Policy in 2006. Lessons from the implementation of this Policy have enabled the GoHP to iteratively adopt appropriate policy measures to meet environmental and social objectives. To address environmental risks, the government has taken the first steps towards a comprehensive river basin management approach. In addition, recognizing the need for assuring environmental flows across the country, HP is the first state in India to have mandated environmental flows of a minimum of 15 percent (of the average lean flow) in all hydropower developments for eco-systems, and to provide for the riparian rights of downstream communities.

**36. HP is also moving towards a river basin approach to the development and implementation of Integrated Basin-wide Catchment Area Treatment (CAT) Plans—deemed global best-practice for managing environmental impacts.** GoHP has already prepared and is close to finalizing an integrated CAT Plan for the Sutlej basin (initiated under the previous DPL) and similar work is in progress for three other river basins based on high quality disaggregated baseline data on forest cover and quality, erosion intensity, and silt load. A monitoring framework has been put in place to ensure the proper disposal of muck and debris – a visible concern in previous hydropower developments. The GoHP has also constituted a Hydropower Producers Forum for each river basin, to facilitate coordination on social, environmental, water flow and catchment area treatment related issues.

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<sup>8</sup>Central Electricity Authority, Ministry of Power, GoI, [www.cea.nic.in](http://www.cea.nic.in)

<sup>9</sup> Apart from serving the peaking power requirements of the country hydropower serves as a balancing reserve for the system. With increased contributions from variable renewable energy sources like wind and solar there is an urgent need for a larger base of system flexible and fast response balancing resources. In addition, hydropower in Himachal Pradesh is located close to the high demand states of Delhi, Punjab, Haryana and Rajasthan, thus avoiding long distance power transmission and its consequences in terms of system losses and voltage drops

37. **Community concerns are being addressed through innovative and generous policies that seek to provide adequate compensation and restore livelihoods.** GoHP has recently adopted a Policy for “Compensation for Damage to Crops during construction of Power Projects” to recompense for loss of production or income on account of incidental damage to crops on land not acquired for project construction. Beyond this, there are other innovative aspects of the wide ranging benefit sharing program aimed at assuring local support for the hydropower development program. Among the many policies, there is a scheme that involves contributions (1.5 percent) of project costs to be paid by developers to a Local Area Development Fund, 2009 (LADF) during the construction phase for undertaking local area development activities. HP is the first State to implement such a policy in India. This is accompanied by regular review and changes in policies/guidelines on management of LADF to facilitate rigorous monitoring, transparency and oversight of the LADF.

#### **B. Promotion of sustainable development through climate change-related adaptation and mitigation actions**

38. **In 2010, HP announced its intention to shift towards a sustainable development and inclusive green growth model to join a number of subnational efforts in this regard.** The state of HP will strive to reduce emissions intensity with respect to state GDP across key GHG intensive sectors by promoting cleaner production and environmentally sound management systems. Also, GoHP has established a broader institutional framework to tackle other elements of the climate change challenge. It has constituted a High level Governing and Executive Council on Climate Change that is charged with overseeing and coordinating work on climate change. Recently prepared, the State Climate Change Strategy and Action Plan is comprehensive in coverage and tailored to HP’s specific circumstances with mitigation and adaptation co-benefits.

#### **C. Empowering Local Communities to Promote Integrated Watershed Management**

39. **Managing watersheds is crucial for sustaining livelihoods and assuring food and water security (for irrigation and domestic use) across HP and neighboring states.** The fragile Himalayan ecosystem in HP forms the catchment of major Indian rivers such as the Sutlej, Beas, Ravi, Chenab and Yamuna. It is an important source of water that supports about 200 million people in Punjab, Haryana, Uttar Pradesh and Rajasthan. Hence, the consideration of downstream impacts is critical to the State’s development strategy.

40. **Recognizing the complexities that emerge from watershed management often fraught with overlapping mandates, GoHP has put innovative systems in place for the communities to work towards a common approach on process and procedures.** Building on successful experience of the ongoing Watershed Department schemes and the Mid-Himalayan Watershed Development Project, GoHP intends to promote watershed management through micro-watershed conservation and development approaches that would be implemented through participatory community led programs.

#### **D. Environmentally Sustainable Industrial Development**

41. **HP has witnessed exponential growth in industrial development with attendant environmental ramifications.** Industrial growth in HP has been historically fueled by

incentives provided by the central and state governments.<sup>10</sup> GoHP's 2004 Industrial Policy and its 2006 amendments provided an additional impetus to industrialization through a host of subsidies including the provision of land, cheap commercial power, local labor, roads, and information technology access. The subsidy driven approach is however unsustainable both from an economic and environmental perspective--as demonstrated globally. GoHP also recognizes that tax breaks and fiscal incentives have led to the creation of often uncompetitive industries.

**42. Rapid industrialization in HP has generated a number of industrial clusters where environmental quality (air and water pollution) is rapidly deteriorating, causing hazardous conditions for neighboring communities.** While the State Pollution Control Board (SPCB) is mandated with regulation of environmental laws, the Industries Department which promotes industrial development is taking a proactive stance by identifying interventions for areas which have become highly polluted. In addition to setting up an industrial waste disposal facility and common effluent treatment plants (CETPs) in various industrial clusters, to reduce the overall environmental impact of industrialization, a list of negative (energy and pollution intensive) industries has been drawn up. Through the greening of its industrial policy, areas that are inherently cleaner such as information technology and bio-technology are being encouraged.

#### **E. Environmentally Sustainable Tourism**

**43. The tourism sector has shown remarkable resilience despite over-crowding in some areas and has the potential to become one of HP's main drivers of economic growth.** Tourism is a very important activity for the economy and society of Himachal Pradesh. It contributes to both the gross domestic product and the employment in the state. It is also an important contributor to the state government's finances. Recent estimates indicate that the contribution of inbound tourists (foreign and domestic) to the state GDP may be as high as 26 percent. Also, the total number of jobs (employees as well as self-employed, excluding casual laborers) in the state attributable to tourism related industries was 400,000 (0.4 million) for 2009-10. This equals 14 percent of the total jobs (employees as well as self-employed).

**44. The tourism sector's potential growth is intricately linked with environmental quality.** GoHP's unique and fragile hill ecosystem, including its protected areas, supports many of the State's most popular tourist activities, including trekking, skiing, angling, mountaineering, rafting, and watching of flora and fauna. Pollution from wastewater and solid wastes, as well as unplanned urban growth, not only threatens the fragile ecosystem, but also reduces the attractiveness of the natural and pristine areas that tourists like to visit. Environmental degradation is particularly impacting tourism hotspots and has become a major impediment to HP achieving its full tourism potential. A major challenge has been lack of coordination between the Tourism Department and the Departments of Urban Development, Town and Country Planning, Environment, Irrigation and Public Health in formulating a coherent strategy for improving tourism potential. While these problems are already evident, they are set to become more severe and widespread without urgent actions and adequate planning.

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<sup>10</sup> Significant fueling of industrial growth in the state's lower areas could be attributed to the central policy of a prolonged tax holiday as a special category state.

45. **Recognizing the potential of the tourism sector and the challenges it faces, the GoHP established a multi-sector task force, and prepared an Integrated Master Plan, with the mission of making tourism the prime engine of economic growth.** The mission seeks to position HP as a leading global destination by the year 2020. The GoHP's target is to increase the contribution of tourism to GSDP to 15 percent by 2020. The policy's key strategic objectives also include creating ample employment opportunities, increasing private sector participation in the creation of tourism infrastructure, and increasing tourist inflow. At the same time GoHP wants to ensure that tourism development does not happen at the cost of the fragile ecosystem of the state.

#### **F. Institutional Mechanism for Integrating GIS in Informed Decision-Making**

46. **In support of the need for informed decision-making and greater transparency, GoHP has recognized the potential of GIS to enhance decision-making and improve development outcomes.** In this regard, GoHP has established the Aryabhata Geo-informatics and Space Application Centre (AGiSAC) to facilitate: (a) decentralized planning and decision making using spatial tools; (b) monitoring and Evaluation of Government Schemes and Programs; (c) integrated natural resources data management system; (d) provide services based on specific user needs in the field of remote Sensing and GIS; and (e) provide wider usage of geo-spatial applications through simultaneous support systems/ software. GoHP's capacity related to GIS systems to capture, store, analyze and manage data, and use with geo-spatial information is steadily improving.

### **IV. PROPOSED OPERATION**

#### **A. LINK TO GOVERNMENT PROGRAM AND OPERATION DESCRIPTION**

47. **The objective of this programmatic DPL series is to support a sub-set of GoHP's plan in making a paradigm shift towards an environmentally sustainable model of economic growth** by promoting improved management of its natural resources and inclusive green growth. The focus is on providing the key foundations that define the short-term measures necessary to achieve these longer term objectives. This is to be achieved by promoting the sustainable use of the State's natural resources – in particular its abundant water resources, forests and biodiversity. The IBRD and CTF-funded operations support specific policy and institutional reforms within GoHP's overall environmental sustainability reform agenda that have been mutually agreed as critical to achieving this transformation. The following sections describe the individual actions within the broad framework that forms the legal basis for the disbursement of the proposed second HP Inclusive Green Growth (IGG) DPL. The Bank and the GoHP have identified the prior actions through a process of mutual consultations.

#### **B. RATIONALE**

48. **Recognizing the unique challenges of developing in a sustainable manner in the fragile and rugged Himalayan region, HP is seeking policy support for a pioneering effort to promote growth through environmental stewardship.** The Bank can bring a wide spectrum of global best practice and experience from its environmental support through development policy operations (DPOs) in other countries. Examples include: state level climate change planning and activities (Mexico); ecotourism and sustainability (Mexico, Sri Lanka, Maldives); building institutional capacity (Peru, Ghana, Brazil); fostering inter and

intra institutional coordination (Morocco); strengthening enforcement and compliance (Mexico, Morocco); enhancing reform durability (Ghana); facilitating civil society outreach and partnership (Brazil, Colombia, Mexico); supporting sustainable natural resources (Cameroon, Laos, Colombia, Mexico); managing environmental risks (Peru, Morocco, Colombia); promoting regional and global public goods (Turkey, Mexico); building adaptation capacity (Indonesia, Vietnam) and promoting resilience to climate-change induced hazards through activities in every continent.

### **C. LINK TO COUNTRY PARTNERSHIP STRATEGY (CPS)**

49. **The loan aligns well with the Country Partnership Strategy for India (Report No. 76176-IN, Board Date April 11, 2013) that will support the Government’s development goal of growth that is faster, more socially and regionally inclusive, and more sustainable as detailed in the 12th Five-Year Plan (FY2013–17).** The India CPS recognizes that while India needs to grow to reduce poverty and create employment, it has an opportunity to do so in a way that is sustainable and preserves the country’s natural heritage. The CPS outlines as its objective, efforts to focus on developing effective systems and institutions to enable more efficient environment management and reduction of resource degradation. It further provides a framework to deal with the challenges of achieving rapid, inclusive growth, ensuring sustainable development, and improving service delivery, with a cross-cutting focus on improving the effectiveness of public spending and achieving results that can be monitored.

50. **GoI now seeks World Bank support only for programs or projects that have a systemic or transformational impact, those that help innovate and pilot new approaches, and finally those that introduce innovative financing instruments and leverage resources.** This is what the HP IGG DPL program intends to achieve. In some ways the HP IGG DPL program breaks new ground, which could have significant demonstration effects in promoting the inclusive green growth agenda in other resource rich states in India and as well in the region. The CPS further states that the Bank will support HP’s inclusive green growth strategy through a series of development policy loans in line with its Climate Business strategic priority, to support a move to lower carbon growth paths through renewable energy, and energy and resource efficiency.

51. **The programmatic HP IGG DPL is also very much in line with the objectives of the GoI’s 12<sup>th</sup> Five-Year Plan which is supported by CPS.** The 12<sup>th</sup> Plan states that staying on a high growth trajectory will require more effective management of natural resources, as rapid growth continues to put pressure on India’s water, land, and forests. Further, it states that the management of India’s water resources is especially critical and requires measures to induce industry, farmers, and households to use water more efficiently. The Plan recognizes that environmental sustainability is no longer a peripheral issue and must be mainstreamed and “addressed squarely.” It further states that inclusiveness involves empowerment and participation. It means greater attention to inequality—both in outcomes and opportunities.

### **D. RELATIONSHIP WITH OTHER BANK OPERATIONS**

52. **This operation is part of the Bank’s long-standing engagement with HP.** For over a decade the Bank has had a multi-sectoral engagement in HP. There has been budget support for fiscal reforms as well as a host of projects in infrastructure such as the Nathpa-Jhakri and Rampur Hydropower Projects, Integrated Watershed Development Project, Mid

Himalayan Watershed Project, as well as State and Rural Roads projects. The support for the green growth agenda should be seen as part of an evolving relationship that has graduated from specific sectoral interventions to broader strategic support for a major shift in the development paradigm. It is also an indication of maturity of the relationship to more strategic policy issues that are most appropriately addressed through DPLs. This also could be attributed to confidence gained through PFM reforms (undertaken under the Fiscal DPL), new financial and procurement rules, greater control over treasury payments, and the use of budget software that has made spending more effective over a period of time.

53. **While focusing on fiscal consolidation, the fiscal HP DPL also supported the mainstreaming of environmental actions in policy**, including the establishment of policy implementation capacity, and the environmental sustainable path towards hydropower development. Most notably this was perhaps the first time that a fiscal DPL recognized and addressed crucial environmental issues in India. The Department of Environment Science & Technology (DEST) created under the fiscal DPL operation is now a strong advocate on environmental issues in the State. The environmental master plan and sectoral guidelines prepared now provide direction by mainstreaming environmental protection and conservation in development projects. By helping the State in taking initial steps towards adopting a basin approach for the Sutlej basin, the operation raised the awareness and sensitivity for sustainable management of the State's hydropower resources. The DPL also provided a mechanism to bring together different stakeholders and achieve changes that cut across departments.

54. **The objective of IBRD-financed First DPL was to support HP in the improved management of its natural resources across growth engines of the economy.** The Bank's engagement with the state spans two decades starting in the areas of watersheds, transport and hydro power and followed by a fiscal DPL in 2007-2008. Building on the dialogue initiated through the fiscal DPL, the Bank supported an ambitious effort towards sustainability across the key engines of economic growth, namely energy, watershed management industry and tourism through series of these two DPLs. The first of HP IGGDPL operation supported six priority areas that are part of GoHP's broader environmental reforms agenda. The key prior actions included; (i) Cabinet decision to enhance and operationalize the capacities in the Department of Environment, Science and Technology (DEST) and Department of Energy (DoE) for effective coordination, monitoring and evaluation; (ii) Notification of the requirement for Cumulative Environmental Impact Assessments (CEIA) for the five key river basins in the State (Sutlej, Beas, Ravi, Yamuna and Chenab), including review of environmental flows and initiation of CEIA for Sutlej Basin; (iii) Preparation of basin wide digital Geographic Information System (GIS based hydropower potential maps for the state; (iv) Approval of an integrated Catchment Area Treatment (CAT) plan for the Sutlej river basin and its implementation, and preparations of integrated CAT plan for the other basins; (v) Amendment to Local Area Development Fund (LADF) to include a long-term benefit sharing policy to provide annuities to affected communities during the lifetime of hydropower projects within the state; (vi) Adoption of strengthened Integrated Watershed Management (IWM) guidelines by the Department of Rural Development (DoRD) to specify an integrated community-led watershed development for Gram Panchayats; (vii) issuance of State Organic Farming Policy; (viii) Amendment to Industrial Policy (2004) that promotes sound environmental management; and (viii) Establishment of Aryabhata Geo-Informatics and Space Application Centre (AGiSAC) to promote integrated GIS mapping and decision making.

## **E. CONSULTATIONS AND COLLABORATION WITH DEVELOPMENT PARTNERS**

55. **The Bank and the IMF consult regularly on key economic and institutional issues.** Growth projections and macroeconomic forecasts — some of which are presented in this program document are discussed regularly between the two institutions. The Bank was informed of the IMF’s Article IV assessment discussions in February 2013. The IMF’s Public Information Notice for Article IV consultations with India is attached in Annex 3.

56. **The Bank also collaborates with other development partners on environmental sustainability issues.** The Bank has been coordinating its work in HP with the Asian Development Bank, which is active in tourism and water resources management and climate change areas. The Bank’s work in India is also supported through dedicated DFID-India Trust Funds, which promotes progress in broader areas such as environmental sustainability, climate change adaptation and mitigation (described under the analytical underpinnings section).

## **F. LESSONS LEARNED**

57. **As evidenced in the previous sections, the design of the proposed Inclusive Green Growth DPL builds on the lessons learned** from the World Bank’s long-term engagement with the GoHP on environmental and climate change issues, and numerous sectoral investments and technical assistance in transport, energy and watersheds. It also builds upon Bank activities around climate change in other middle-income countries. In particular, valuable lessons were learned from the Fiscal DPL and the first of the Programmatic Inclusive Green Growth DPL -- including experience with the related technical assistance packages. These loans recognized in particular the need for a sound analytical basis at the sectoral and institutional levels, inter-agency coordination, and a strong monitoring program. This DPL is also built on the foundation of the analytical work described below.

58. **Aside from underpinning the substance and Bank-Government dialogue on policy, the Bank-supported energy, environment, transport and watersheds** and above-mentioned sectoral activities provided valuable lessons in designing this operation. The most important lessons from these various operations and activities, taken from a review of the Implementation Completion Reports and discussions with both line agencies and central government agencies, are the importance of:

- *Strong Client Ownership:* Strong client ownership was critical to success, particularly when supporting cross-sectoral efforts, such as those included in the proposed loan. The proposed project responds to Government’s request to support specific priority programs and areas, which reflect the outcome of strategic planning processes and a paradigm shift. It is grounded in the Government’s exemplary program and activities in energy, environment and climate change, including a comprehensive State Climate Change Strategy and Action Plan
- *Using the Government’s Framework:* The proposed operation builds upon the Government’s existing program for addressing transformational shifts in priority sectors, focusing on a select number of central actions, impacts, and results in the design of the Program. Toward this aim, the monitoring indicators are drawn directly

from those the Government's program is using to assess the success of its interventions.

- *Providing Just-in-Time Strategic Engagement and Support:* The experience with developing and providing comprehensive analytic and advisory packages on those priority issues, as a complement to policy lending, has served to ensure that policy development is predicated upon a sound and strategic analytic basis.
- *Continued Engagement:* The long-term engagement between the Bank and the GoHP on sustainable hydro development has supported HP's leadership in the arena not only in the country but also in the region. At the Government's request, the Bank has focused its continued support around this priority area. As such, the proposed operation represents the logical next step in this relationship.

## G. ANALYTICAL UNDERPINNINGS

59. **The analytical underpinnings of this work include a variety of tasks and documents that provide continuing support in areas of strategic significance to this operation.** The actions supported by the DPL build upon the Bank report HP: "Accelerating Development and Sustaining Success in a Hill State" which provided a comprehensive environmental diagnostic. This report recognized that sustainable growth would need to be driven through improved environmental and natural resource management and use. It recognized the need for making the State's hydropower development plans more environmentally and socially beneficial. This was complemented by an Environmental Institutional Assessment to help operationalize DEST in a systematic and structured manner with the overall objective of facilitating environmentally sound and sustainable decisions by the GoHP. The institutional assessment emphasized the need for a uniform focus and integration of environmental concerns among sectors – an issue addressed in this operation. It also identified the need for addressing crucial knowledge and capacity gaps.

60. **However, the study reiterated that the sustainability of HP's success for the future will depend on addressing three major transitions that the State faces.** This must take several key directions. The potential for hydropower development, which is being realized at an accelerating pace, has to be judiciously and prudently managed to support the desired fiscal outturns and to invest in the future of the State. At the same time, the downside effects of hydropower development on the environment, especially reduced water for downstream uses, will require much improved attention to ensure that society as a whole benefits, and that development is sustainable. Furthermore, a broader environmentally sustainable strategy will be essential, for forestry development, community projects, urban management, and water supply. Failure to take action against environmental degradation in a society dependent on its natural resource base could ultimately threaten future growth prospects. It is critical to address these challenges before they start to impact on the State's successful socio-economic performance.

61. **The study also recognized that meeting these three transition challenges will not be easy.** Difficult choices in public policies will be needed. This marks a break from HP's past development strategies. The role of the State, in particular, must change increasingly from a direct provider of services and jobs to being an enabler of HP's human and natural resource development potential, and one where the core functions will need to be strengthened and its key institutions revamped towards a modern developmental State. If

these three transitions are achieved successfully, HP could become the first hill state in India that is able to achieve sustainable and accelerated growth with broadly-based social development.

62. **The operation also builds on the World Bank report entitled “Energy Intensive Sectors of the Indian Economy: Path to Low Carbon Development”**, which identified hydropower as one of the technologies that can potentially impact the GHG trajectory in the country. Initiated in 2005, this study was requested by the GoI to:

- develop the analytical capacity required to help identify low-carbon growth opportunities, up to the end of the 15<sup>th</sup> Five-Year Plan (March 2032), in major sectors of the economy;
- facilitate informed decision-making by improving the knowledge base and raising national and international awareness of India’s efforts to address global climate change.

63. **The final report issued in 2011 uses an innovative bottom-up engineering-style model to examine CO2 emissions** for different scenarios or potential carbon futures for India which look at how total emissions might evolve under different assumptions about energy supply and demand drivers, in different sectors of the economy. This also formed the basis for India’s CTF proposal.

64. **The GoHP has also undertaken a number of analytical and technical assistance activities as a part of ongoing Non-Lending Technical Assistance NLTA**, which informed this operation. The NLTA Components are summarized in paras below.

65. **The Strategic Environment Assessment (SEA) of the Tourism Sector** provided the Government with an approach to implement the 2013 Sustainable Tourism Development Policy, and a guide to improve sustainability within other State destinations. The draft Dharmshala Sustainable Tourism Action Plan was also prepared that outlines actions to advance the greater Dharmshala region, and Himachal Pradesh, as ‘global leaders in sustainable tourism’. The plan identifies actions, responsibilities and timelines for quick-win initiatives to manage the environmental assets, preserve cultural heritage and develop human resources. A Tourism Satellite Accounts (TSA) was prepared to provide detailed and analytical information on all aspects of tourism. It covers, for example, the product composition of tourism consumption, the industries most concerned with the activities of visitors and their relationships with other industries, etc. These types of aggregates are extremely useful because they provide summary indicators of the size of tourism. Estimates using Tourism Satellite Accounts TSA methodologies indicate that the contribution of inbound tourists (foreign and domestic) to the state of Himachal Pradesh’s GDP may be as high as 26 percent; with the specific contribution of foreign tourists in the state estimated to be significantly the largest and over 20 percent.

66. **A “Study on Assessing and Strengthening Monitoring and Institutional Mechanisms for Appropriate Environmental Flows,”** suggests ways for project developers to integrate environmental flow requirements into hydropower development plans, design and operations and for government on how to strengthen the monitoring arrangements. This was a key input to GoHP’s policy on environmental flows.

67. **A feasibility study on natural capital accounting** was undertaken to develop forest accounts for HP. It describes an approach to link environment with the economy and

proposes a set of accounts to address these linkages. It was a useful input to the development of the policy on payment for ecosystem services.

68. **A Strategic Environment Assessment of the Industry Sector (SEA)** identified priority industrial pollutants and economic instruments to minimize industrial waste. It also reviewed the existing institutional structures that address these pollutants and identified potential reforms through the introduction of new policy approaches, the specific resource requirements and institutional steps necessary to implement such a program.

69. **All of this was complemented with a South-South (S-S) Exchange** component whereby key officials from GoHP visited Mexico. The objective of the S-S exchange was to enhance knowledge and skills of GoHP officials and learn good practices on building coalition and partnerships towards achieving green growth and climate change goals. The exchange also provided the Himachal Pradesh officials an enhanced understanding of technical and policy responses at the federal and state level pertaining to the dual challenges of climate change and inclusive green growth.

## **H. PRIOR ACTIONS AND RESULTS**

### **A. Increased adoption of environmental and social parameters in hydropower development**

**HP IGG DPL II Prior Action 1: GoHP has designed, adopted and implemented a web-based real-time monitoring system for project milestones, including those relating to environment and social parameters and environmental flows.**

70. **GoHP has already made plans to develop hydropower potential in the State. The constraints in the present reporting and monitoring mechanism** especially on environmental and social parameters are one of the key challenges affecting the quality of the development. A strong monitoring framework, particularly of environment and social parameters, is therefore key to improving the quality of hydropower development already planned by GoHP. To improve the quality of hydropower development already planned, GoHP is taking a number of initiatives as a part of HP IGG DPL Program. To ensure proper project identification before allotment, the State has undertaken a basin mapping through a GIS tool across all the river basins to identify balance exploitable hydro potential taking into account ground level reality. The full digital maps for all the river basins have been prepared and will now help in ensuring that the state authorities are able to take an informed decision while allotting any hydropower project from an environmental sustainability perspective.

71. **In addition, as a part of HP IGG DPL II, GoHP has initiated innovative online monitoring of all hydro projects in the state to help improve the quality of hydropower development through an enhanced focus on the environmental and social sustainability of the program.** The online monitoring system of project implementation will provide actual feedback on the different aspects of development of hydropower development already planned, including on physical milestones and on environmental and social parameters as agreed during the allotment of the project and their present status. Through this GoHP will be able to access information at the project level as well at the State level on the status of project development, understand challenges being faced in development (including on environmental and social parameters) and accordingly take the necessary corrective action to help improve the quality of hydropower development.

**HP IGG DPL II Prior action 2: GoHP has (i) carried out an interim review of the ongoing cumulative environmental impact assessment study of the Satluj river basin; and (ii) developed a concurrent action plan.**

72. **It is now widely recognized that the conventional, project-based approach to environmental assessment, which focuses only on site-specific issues, has its limitations when it comes to assessing regional and long-term impacts of development.** Project-by-project environmental impact assessments (EIA) fail to assess the potential cumulative effects on environmental resources. For instance, the impact of a particular project on an environmental resource may be insignificant when assessed in isolation, but may be significant when evaluated in the context of the combined effect of all past, present, and reasonably foreseeable future activities that may have or have had an impact on the resources in question. Therefore, the assessment of cumulative effects is now considered desirable in environmental assessment practice in many countries

73. **Increasingly, cumulative effects assessments are being used world-wide to evaluate the combined impacts of development activities.** However, the use of cumulative effects assessments as a tool for decision making is more effective if there is clarity up front about the parameters of importance to the various parties in the local context, in particular if there is consensus. Given the cascading nature of hydro development, failure to account for such cumulative effects could undermine HP's efforts to transform the policy environment for sustainable hydro development. Under First HP IGG DPL, GoHP mandated Cumulative Environmental Impact Assessment of all its river basins. Such an assessment would give basin-wide analysis of environmental and social impacts and will facilitate taking into account cumulative impacts and sequential effects of hydro development and thereby promote sustainable hydro development. CEIA was piloted for Sutlej basin as a part of First HP IGG DPL series and initiated in other river basins. Under Second HP IGG DPL, a draft report on CEIA for Sutlej has been prepared and based on a preliminary analysis; a concurrent action plan has been formulated.

**Prior action 1 and 2 are contributing to Result 1:** Percentage of operational projects that have minimum environmental flow policy applicable and which have adopted real time monitoring.

**HP IGG DPL II Prior Action 3: GoHP has adopted and implemented a benefit sharing scheme to complement the Local Area Development Fund, by initiating the payment of Cash Transfers to Eligible Beneficiaries**

74. **Local communities are the most directly affected by the development of hydropower projects.** Because the development of hydropower is a long-term process in which most of the costs and negative impacts are imposed early in the development and construction process, with the benefits becomes visible only later, local people are often skeptical of these projects. The reason being that they cause disruption to their social and economic life during the construction phase, and in some cases physical displacement.

75. **The Hydropower Policy adopted by GoHP in 2006 provided for improvement of basic amenities and infrastructure facilities** in the project affected villages. The Policy also provided for a contribution by project developers to a Local Area Development Fund (LADF) based on 1.5 percent of final construction cost to be used for improvement of local

infrastructure in villages (while the project is under construction).<sup>11</sup> Under HP IGG DPL I, GoHP revised its guidelines for the management of LADF. The objective of the revision was to manage the LADF activities in an objective, transparent and efficient manner and to increase local participation in benefits arising from hydropower development. In addition the amended policy provides for the communities to have a greater say in how the LADF money is spent and development work undertaken in the area from LADF. HP also became the first state in the country to institute an **innovative benefit sharing policy** that will provide **annuity payments** to households residing in the project affected area from the sale of electricity during the operation of the project (after commissioning) for the life of the project. Under HP IGG DPL II, this cash transfer program is to be piloted with households receiving direct payments. In addition, the government has also put in place a grievance redressal mechanism to handle the grievances related to beneficiary selection under a direct cash transfer program.

**Prior action 3 is contributing to Result 2:** Number of people benefiting from direct cash transfer program under LADF Policy.

## **B. Promotion of sustainable development through climate change-related adaptation and mitigation actions**

**HP IGG DPL II Prior Action 4: GoHP has prepared and publicly disclosed Himachal Pradesh's comprehensive Action Plan on Climate Change.**

76. **HP is one of the most vulnerable states to climate change** because of its geography (Himalayan mountain ecosystem) and excessive dependence of the economy on climate-sensitive sectors such as hydropower, agriculture, horticulture and tourism. The state's development path is based on its unique resource endowments, the overriding priority of economic and social development and poverty eradication in the state, and its adherence to its legacy places a high value on the environment and the maintenance of ecological balance. Climate change may alter the distribution and quality of natural resources of Himachal Pradesh and adversely affect the livelihoods of its people. Also, according to the GHG emissions data, HP emitted 11.7 million tons of CO<sub>2</sub>e in 2010 without adjusting for land use, and forestry, wherein in the rest of India, such per capita emissions are far below the world average.

77. **As a Prior Action for HP IGG DPL II, GoHP adopted and publicly disclosed its comprehensive Action Plan on Climate Change**, which identifies co-benefits in mitigation and adaptation, in particular with regard to rural livelihoods improvements. The Action Plan identifies the highly vulnerable sectors of the economy to climate change, in particular its water resources and agricultural yields, and various adaptation measures, which include an integrated approach to watershed management. The Action Plan also identifies the state's contribution to reducing GHG emissions intensity with respect to state GDP, through the deployment of its vast hydropower resources. The state is separately developing GHG emission inventory in Himachal Pradesh.

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<sup>11</sup> The LADF is administered by a District Level Committee called Local Area Development Committee (LADC) under the Chairmanship of Deputy Commissioner and comprising of various stakeholders.

## **Ecosystem Evaluation Analysis and Payments for Ecosystem Services**

**HP IGG DPL II Prior Action 5: GoHP has: (i) carried out a state-wide ecosystems evaluation analysis, and (ii) issued notification of a state policy on payments for ecosystem services.**

78. **The Himalayan ecosystem in HP is highly vulnerable due to its ecological and geological sensitivities** coupled with increasing population load and exploitation of natural resources. These effects are likely to be exacerbated due to its reliance on monsoons and glacier fed rivers which could be affected by climate change variations induced by factors such as increased temperature, glacier retreat, altered precipitation and extreme flood or drought conditions. HP's rich and varied natural heritage therefore provides both opportunities and risks to its development strategy. Sustainability of economic growth in HP is contingent upon sustainability of its environmental heritage. While some environmental degradation inevitably accompanies growth, inaction or failure to balance the environmental costs of development with the benefits will have particularly serious consequences for the HP particularly since its opportunities lie in sectors like hydropower and tourism which are highly dependent on the health of natural resources.

79. **Given HP's unique geographic situation and small resource base that protect rich natural resources** assume greater importance than in other states. Also, given the uniqueness of the ecosystem and remoteness imposed by geography, communities have to play a vanguard role in protecting the ecosystems. Unfortunately, there is little incentive for communities to protect forest ecosystems and catchments of river basins which are mostly Government owned and whose destruction has implications for downstream development of hydro projects (and future tourism potential).

80. **As a prior action for HP IGG DPL II, GoHP has instituted a policy on Payment for Ecosystem Services (PES).** Under the policy, GoHP intends to provide compensation to communities if they are protecting a vital natural resource such as the forests for arresting erosion of the catchment. HP will also implement ecosystem accounts for its forest assets. HP's efforts to implement ecosystem accounts will help contribute to the global body of knowledge on the implementation of payment for ecosystem services. Moreover, compilation of ecosystem accounts has helped in the development of the state's sustainable tourism policy, inform the state's efforts to achieve inclusive green growth, and enable the assessment of the watershed management services provided by the state to downstream areas.

**Prior action 4 and 5 are contributing to Result 3:** Number of Departments that are integrating State Climate Change Strategy and Action in development plans and PES in their operational strategy

### **C. Increased local Communities participation in development of Watershed Management**

**HP IGG DPL II Prior Action 6: GoHP has: (i) begun the implementation of the Integrated Watershed Management Program (IWMP) Guidelines, by preparing and adopting through a multi-disciplinary team, an integrated Micro-Watershed Development Plans (one per Block); which plans are publicly monitored and disclosed**

in AGiSAC's website; and (ii) prepared and commenced the implementation of a capacity building plan for stakeholders departments.

**HP IGG DPL II Prior Action 7: GoHP has amended the HP Water Policy-2005 through the notification of the new HP Water Policy-2013 for the sustainable management of HP water resources.**

81. **HP provides the watersheds for the major north Indian rivers** (Sutlej, Beas, Ravi Chenab and Yamuna) that sustain life and support the agrarian economy of Northern India. Integrated watershed management (IWM) is rooted in participatory planning and requires institutional capacity in State line departments, Gram Panchayats and local communities to manage watershed resources. Prudent watershed management in HP will bring benefits to the lives and livelihoods of over 200 million people in Haryana, Punjab, Uttar Pradesh and Rajasthan in addition to enhancing agricultural productivity and the natural resource base. As part of this broader strategy the GoHP intends to promote micro-water watershed conservation and development approaches that would be developed and implemented through a participatory approach at the Gram Panchayat (GP) level instead of being driven by the Departments. This would yield dual benefits in improving agricultural resilience and yields as well as benefits to other states that rely upon these rivers.

82. **The 2005 water policy of the state did not take into account climate change,** environmental sustainability and socio-economic aspects in a systematic manner. It was also not consistent with the 2012 National Water Policy.

83. **As a trigger for HP IGG DPL I, GoHP initiated the preparation of guidelines** for integrated micro-watershed development plans by a multi-disciplinary team under the Rural Development Department. **As a prior action for HP IGG DPL II,** based on the prepared guidelines, micro-watersheds plans were prepared for implementation in a collaborative manner between the local stakeholders and Government Departments. Once fully implemented, this watershed management approach will provide a credible answer towards sustainably increasing the productivity of rain fed agriculture; arresting and reversing land degradation; and reducing water stress by recharging local aquifers and reducing silt accumulation downstream. The Rural Development Department has also provided training for implementation of the plans to the stakeholder communities. A monitoring framework to monitor implementation through AGiSAC has also been adopted.

84. **As a part of IGG DPL II prior action, an amended Water policy was adopted in 2013 to put in place** a regulatory mechanism for sustainable use of water sources, for prioritization of water use across various consumers based on constraints of urbanization and climate change and for involving the private sector in distribution of water and collection of water charges through public-private partnerships.

85. **Prior actions 6 and 7 are contributing to Result 4:** Number of micro watershed catchments which have developed and put in place an integrated community-led watershed development.

## **D. Increased adoption of sound environmental management practices in Industrial Development**

**HP IGG DPL II Prior Action 8: GoHP has designed and issued notification on economic instruments for incentivizing the adoption of cleaner technologies, including disincentives to industries identified in the Negative List (which largely consists of polluting industries)**

86. HP has witnessed exponential growth in industrial development fueled by incentives provided by the central and state governments. In the 1980's and 90's subsidies and concessions were introduced to promote investment, particularly by firms utilizing local raw materials and labor. Support was deemed necessary to compensate for the high costs of a difficult terrain and inadequate industrial infrastructure. GoHP's 2004 Industrial Policy and its 2006 amendments also provided an additional impetus to industrialization through a host of subsidies including the provision of land, cheap commercial power, local labor, roads, and information technology access. But more significant in fueling industrial growth, the state's lower areas have benefitted from the central policy of a prolonged tax holiday for this state.

87. Rapid industrialization in HP has generated a number of industrial clusters where environmental quality (air and water pollution) is rapidly deteriorating causing hazardous conditions for neighboring communities and ecosystems. While the State Pollution Control Board (SPCB) is mandated with regulation of environmental laws, the Industries Department which promotes industrial development is now trying to identify interventions for areas which have become environmentally sensitive hot spots especially given the ecological fragility of the state.

88. **Supported by HP IGG DPL I**, GoHP announced that, Government agencies (including the Industries Department and the State Pollution Control Board) and the private sector will jointly review the 2004 industrial policy and determine new policy approaches that will catalyze or accelerate cleaner production in the State. This resulted in a **draft new industrial policy in 2013** with a vision to encourage eco-friendly and environmentally sustainable industrial growth through adoption of cleaner technologies and environmental management systems and promoting public disclosure of pollution status of the industrial units and estates. The new policy has now been disclosed for public consultation.

89. **Actions supported by HP IGG DPL II** includes an amendment to the 2004 industrial policy<sup>12</sup> introducing: (i) incentives for the installation of new modern pollution control devices in the form of grants up to a ceiling of Rs. 5.00 lacs or 20 percent of the cost of installation of new modern pollution control devices whichever is lower; (ii) provision of government land as an incentive for setting up of Common Effluent Treatment Plants in areas of industrial concentration; and (iii) provision of additional incentives for industrial pollution control to thrust industries (including SMEs). A public disclosure of environmental performance of major polluting industries was also completed. These incentives were introduced in lieu of a green cess which could not be implemented at the state level since it was beyond the purview of GoHP and needed a central legislative approval.

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<sup>12</sup> This will be incorporated in the new policy once that is adopted.

**Prior action 8 is contributing to Result 5:** Percent of industries that have adopted environmental management systems in the state.

#### **E. Increased adoption of sound environmental management practices in Tourism Development**

**HP IGG DPL II Prior Action 9:** GoHP has amended the Tourism Policy-2005 through the adoption of the Sustainable Tourism Development Policy-2013 in order to ensure the environmental sustainability of the activities in the sector, including the use of economic instruments to internalize environmental externalities of tourism.

**GoHP has commenced the implementation of sustainable tourism practices in Himachal Pradesh.**

90. **Being one of HP's main drivers of the state's economic growth, Tourism is a very important** activity that contributes to both the gross domestic product and the employment in the state. The tourism sector's potential growth is also intricately linked with environmental quality. Pollution from wastewater and solid wastes, as well as unplanned urban growth, not only threatens the fragile ecosystem, but also reduces the attractiveness of the natural and pristine areas that tourists like to visit. A major policy and institutional challenge has been the lack of coordination between the Tourism Department and the Departments of Urban Development, Town and Country Planning, Environment, Irrigation and Public Health. Recognizing the potential of the tourism sector and the challenges it faces, GoHP wants to ensure that tourism development does not happen at the cost of the fragile ecosystem of the state.

91. **Based on the recommendations of the Strategic Environmental Assessment for the sector**, a Prior Action for IGG DPL II is the adoption of a Sustainable Tourism Policy to incorporate environmental sustainability and internalize the externalities of the tourism industry, through the use of economic instruments. This builds on sustainability elements in a sector that has shown remarkable dynamism and has the potential to become one of Himachal Pradesh's main drivers of economic growth. It also builds on the work of the Task Force for Integrated Sustainable Tourism Development which for the first time brought various stakeholders together. In addition, the state is also committed to commencing sustainable tourism practices, including Tourism Satellite Accounts, wastewater treatment and solid waste management in key tourist destinations, which will be monitored through the government's financial commitment to this initiative. As a pilot Dharamshala Sustainable Tourism Action Plan has been prepared.

**Prior action 9 and 10 are contributing to Result 6:** Number of towns adopting environmentally sustainable tourism development plans and practices.

#### **F. Improved integration of GIS mapping and decision making in the state.**

**HP IGG DPL II Prior Action 11:** GoHP has issued an Order operationalizing AGiSAC's protocols for monitoring and evaluation of activities in the infrastructure

**and natural resources management sectors, including the integration of geo-informatics technology.**

92. **The current development planning in the state is being undertaken with limited use of GIS information** leading to unintentional consequences on ecological fragility and limited baseline data to inform future development and monitor current patterns.

93. **As a part of HP IGG DPL I, GoHP established the Aryabhata Geo-informatics and Space Application Center (AGiSAC)** to assist with generating information for monitoring the use of geo-spatial information. AGiSAC will cover all major sectors of remote sensing applications and is expected to play a significant role in monitoring results across the DPL operation. This is also expected to contribute to monitoring of the end of series outcomes as all concerned departments integrate decision based GIS mapping for planning and program development.

94. **As a prior action for the second DPL operation,** the GoHP has operationalized protocols for monitoring and evaluation by AGiSAC for infrastructure and natural resources management sector and integration of geo-informatics technology. The centre uses GIS based application which has integrated inputs on base line data and monitoring frameworks of all critical departments. This will be used as an effective tool in development planning and projects keeping in view the ecological fragility of the state. Also, this center will be the central repository of all sectoral base line and monitoring data of the state.

**Prior action 11 is contributing to Result 7:** Number of departments using AGiSAC facilities for their strategy and planning purposes.

## **V. OTHER DESIGN AND APPRAISAL ISSUES**

### **A. POVERTY AND SOCIAL IMPACT**

95. At the macro level, the proposed reform program will contribute to the ongoing transformation of the state's economy toward the infrastructure sector as well as the secondary, tertiary sectors while providing a new impetus to growth. At the micro level, the benefits of the reforms will be shared with local populations through a range of community schemes, which will have the effect of redistributing the gains from macroeconomic reforms and mitigating the impact of negative spillovers while building local support for the reforms. Two specific areas of interest at the micro level are: (i) the first-of-kind benefit-sharing program to complement hydropower projects across Himachal Pradesh, which will target social sustainability in project-affected communities through mandatory provisions to a Local Area Development Fund and distribution of cash benefits to local communities; and (ii) promotion of a community-based watershed management approach in agricultural and horticultural sectors, as well as the establishment of agribusiness centers, which will target poverty alleviation through improved rural incomes and better market access.

96. **While it is anticipated that the reforms under the DPL will have positive social and poverty consequences,** it was also important to assess the extent to which this will happen, and to provide feedback in case of hiccups to make recommendations for course correction in implementation. Since the program constitutes the first inclusive green growth model for India and is being implemented in a frontrunner state in terms of socioeconomic

and environmental outcomes, it will likely reflect certain complementarities and tensions between growth on the one hand, and social and environmental sustainability, on the other. The incorporation of the evolving multidimensional impacts in policy will ultimately increase the effectiveness and long-term sustainability of the reforms set out in the DPL. A Poverty and Social Impact Analysis (PSIA) has therefore been undertaken, in keeping with the Program Document for DPL I, to keep track of the impacts of the unfolding reform. The design of the PSIA was influenced by the complexity of the proposed reform program and the associated methodological challenges, which include the varying time horizon for realizing the various outcomes, the possible mixed impacts stemming from the multi-sectoral nature of the program, and the differing geographical spread of the various reform initiatives (see Annex 4).

97. **In the first stage of the PSIA, the state's development outcomes over time were documented using the National Sample Survey (NSS) and draw upon other surveys such as the National Family Health Survey (NFHS).** This was complemented with primary data from an ethnographic study, which captures qualitative accounts of the hopes and fears of the local population in response to the ongoing reform initiatives. Together, these sources provided an understanding of the state's social and economic development trajectory and serve as an early assessment of the opportunities and pitfalls associated with the reforms. The analysis revealed that poverty headcount declined for all groups in Himachal Pradesh since the mid-2000s, including the period between 2009/10 and 2011/12 during which the reforms included in the DPL program were being rolled out. Similarly, the overall employment rate has been consistently high, especially in comparison to neighboring states, though there are important differences across social groups (most notably among scheduled castes, tribes and other backward castes). However, women's employment has been consistently high in Himachal and it has increased considerably since 2009, despite remaining below male employment especially in urban areas (figure 2). Employment in the construction sector also increased rapidly since the industrial reforms in the mid-2000s, but it flattened since 2009. Finally, qualitative data suggests that there is strong support for reforms and economic change, but this is accompanied by concerns around social and environmental sustainability of infrastructure growth.

98. **Further, the second stage of the PSIA was designed to monitor the social and welfare impacts** of the implementation of two particular policies supported by this operation, namely benefit-sharing and community-based watershed management at the community-level. Although initial analytical work for the first part of the PSIA suggests that the overall impacts will be positive, the aim of the second stage of the PSIA is to collect household survey and other types of qualitative data in the communities affected by these two pillars of the program in order to provide feedback for further refining the targeted cash transfer to one hydro project under benefit sharing scheme to promote long-term sustainability of hydropower and rural development programs (see Annex 4).

## **B. ENVIRONMENTAL ASPECTS**

99. **The policy reforms supported by second HP IGG DPL were examined for their effect on environment, forests and other natural resources as per OP 8.60.**<sup>13</sup> It is clear

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<sup>13</sup> World Bank (2008). Toolkit for Assessing the Environmental, Forest, and other Natural Resource Aspects of Development Policy Lending.

from the review that the GoHP's plan of inclusive green growth aims at improved overall global and local environmental benefits; and the subset of reforms supported by this operation will only have positive effects. The proposed second HP IGG DPL supports the Government of India (GoI) and GoHP in a shift towards an environmentally sustainable model of economic growth by promoting improved management of its natural resources, sustainability and inclusive green growth. The GoHP has expressed strong interest to adopt and continue reforms in key areas, in building its knowledge base and institutional capacity and in promoting sustainability in its growth agenda. The above is supported by environmental assessments undertaken for various projects in HP as well as from the analytical documentation that addresses environmental issues that are summarized in the Annex 5.

100. **HP's environmental institutions and regulations build upon a comprehensive national level policy framework for environmental and forest management**, which sets out elaborate regulations, procedures, and an elaborate distribution of roles and responsibilities between the national and the state governments that cover environmental and natural resource management. Implementation of these is left to state level institutions, with specific intervention of the national level agencies and regulators as per the procedures prescribed at the national level.

101. **This operation seeks to strengthen and enhance environmental and social management in key sectors (energy, industry, tourism, rural development) of the State, and are expected to achieve improved environmental and social results as follows:**

- Micro-watershed plans prepared using IWRM guidelines will promote water use efficiency, soil conservation and watershed conservation leading to improved agricultural resilience. **Watershed management** generates well documented environmental benefits in the form of soil conservation, habitats for bio-diversity, improved forest cover and reduced sedimentation;
- The incentives introduced **in industrial development** will promote adoption of clean technology and improvement of environmental compliance of industries. Removal of incentives for polluting industries will lead to a reduction in pollution load and a consequent improvement in ambient environment;
- Promotion of tourism in the state will be governed by environmental sustainability criteria developed in the new tourism policy. Also, systematic preparation of city sustainable development plans will lead to sustainable tourism practices;
- Promotion of sustainable development through climate change-related adaptation and mitigation actions.

A range of initiatives in the energy sector aim at enhancing the adoption of environmentally sustainable and socially responsible parameters in the ongoing hydropower development program;

- **Adoption and implementation of a Benefit Sharing Mechanism (which will complement the Local Area Development Fund for affected people)** – will provide annuities as direct cash transfers to affected families in the project area during the operational life of hydropower projects. This new policy initiative will apply to all hydro projects allocated (i.e. projects where concession agreements will be signed) by the state government with project proponents after notification of this policy. The Ministry of Power, GoI is also reviewing implementation of this policy for hydro

projects, which were allocated before this policy was in place and are being implemented by Central Public Sector Undertakings (Chamera Hydro Project in HP is one such example where this has been already done);

- **Implementation of real time monitoring of environmental flow**, wherein environmental flow will be monitored on real time basis for all hydropower projects, and information will be available on line on the web;
- **Implementation of monitoring tools for environmental and social compliance** defined in project implementation agreements of hydro projects, which will be led by Department of Energy of the GoHP;
- **A comprehensive communication strategy for the environmentally and socially sound hydropower development**, where road map of implementation is being developed;
- **A Grievance Redressal Mechanism** to address the grievances related to the LADF and the Benefit Sharing Mechanism in the form of a Grievance Redressal Committee headed by the respective Deputy Commissioner of the district where implemented projects will be constituted for all hydro projects;
- **Cumulative Impact Assessments undertaken** by the GoHP under the DPL program will provide better information to the State Environmental Impact Assessment Agencies to take decisions on management of environment and social impacts.

102. **The state already has a functioning institutional arrangement for environmental assessment and compliance monitoring.** This arrangement had worked over the past years to ensure that environmental assessments are undertaken by projects as per the applicable national or state laws and regulations; and compliance to environmental and social norms and standards were monitored. The state within the ambit of their own environmental and social assessment systems and that of Government of India's laws and guidelines is augmenting and strengthening the regulatory compliance monitoring system to safeguard environmental and social aspects for all sectors which are responsible for economic growth of the state. This DPL program has provided a reasonable standard where it can effectively start monitoring projects from an environmentally and socially sustainable perspective and will improve the existing system. GoHP has also recognized the need for intensive stakeholder consultations and has undertaken a series of consultations under this program as indicated in Annex 5.

### **C. PUBLIC FINANCIAL MANAGEMENT**

103. In the area of Public Financial Management (PFM), the Bank and GoHP had previously engaged to produce a study of the state finances and a Public Expenditure and Financial Accountability (PEFA) Assessment (Report No. 48635-IN) which was issued in June 2009. This study made an objective assessment of the PEFA system of the State, and on one hand, listed its strengths and weaknesses and identified areas in need of strengthening; further, it created a baseline for monitoring the impact of PFM reforms. The study has provided a background for articulating a reform strategy and prioritized implementation action plan by GoHP. The overall conclusion of the assessment was that performance issues existed in several aspects of the PFM system in HP. It was critical to effectively address these issues in a strategic and sequential manner. Some indicators on classification and comprehensiveness of the budget and public access to information showed a positive trend. GoHP publishes its annual budget immediately upon its tabling in the legislature in March of

each year which is also available on the web. On the other hand, indicators relating to budget execution i.e. accounting, reporting and audit findings<sup>14</sup> showed a need for improvement.

104. **Overall the State continues to strengthen its PFM systems and processes.** GoHP has been gradually, but strategically improving several key components of its PFM architecture; these include: (a) revision of the State Financial Rules – in-house exercise which has comprehensively revised/ integrated more than 30 year old rules and several circulars that had been issued from time to time; (b) issuance of a State Budget Manual – which clearly lays down the guidelines and parameters for budget preparation; (c) establishment of a high-level committee for monitoring the findings of audits conducted by the Comptroller and Auditor General of India; and (d) reduction in cash payments to improve internal controls. Further, recent and ongoing initiatives of the GoHP include rollout of a budget software across all departments which allocates budgets online and communicates with the treasury software; wage payments in the major works departments now under the control of the treasuries; E-procurement made mandatory for large works in key departments; and initiatives being undertaken in rollout of a HR database that would be integrated with the State Treasury. Overall the state continues to strengthen its PFM systems and processes.

105. **In a recent development, GoHP has approached** the Bank for assistance on improvement in PFM for key state level institutions. The Bank has approved the NLTA (P148190) in January 2014 which will support initiatives including a comprehensive risk analysis and IT systems audit of the HP Treasuries; implementation of a Contract Management Solution in two key departments namely Public Works Department/Irrigation and Public Health ( PWD/ IPH); and provide a roadmap for accounts reorganization of the recently corporatized Himachal Pradesh State Electricity Board (HPSEB). In the context of implementation of the reform plan of GoHP, the task team considers the fiduciary risk for this operation to be low/ moderate.

106. **The Bank has reasonable assurance that the control environment for foreign exchange in the Reserve Bank of India (RBI),** which is the Central Bank of India is satisfactory for the purposes of this operation, based on the RBI audit report and the satisfactory outcomes of other operations, which have been disbursed and managed through the RBI. The International Monetary Fund (IMF) does not carry out a Safeguard Assessment of the RBI. As part of the preparation for this operation, the RBI audit report and published annual financial statements for the Bank's Fiscal Year which ended June 30, 2013, were reviewed by the Bank. The audit report has a clean, unqualified opinion, and was conducted by firms of chartered accountants appointed by GoI. The financial statements are prepared in accordance with the RBI Act, 1934, the notifications were issued thereunder and in the form prescribed by the RBI General Regulations 1949, and the audit was conducted based on auditing standards in India.

### **Disbursement and Auditing**

107. The proposed loan will follow the Bank's disbursement procedures for development policy loans. Upon effectiveness of the loan, and on confirmation that all the prior actions have been met, the borrower, i.e., GoI will submit a withdrawal application to the Bank. The

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<sup>14</sup> The audit process conducted by the C&AG is robust

Bank will disburse the US Dollar proceeds to the credit of GoI's account with the RBI. This account is controlled by the Office of the Controller of Aid, Accounts, and Audit (CAAA) of the Department of Economic Affairs, GoI and is part of the GoI's general foreign exchange reserves. Upon receipt of the loan proceeds, GoI will transfer the equivalent rupee amount to GoHP as per the guidelines for the transfer of external assistance to "special category" states. GoHP will confirm to the Bank within 30 days, the receipt of the tranche and its credit into the Consolidated Fund of the State. Similar disbursement arrangements have been used in other sub-national DPLs in India including the fiscal DPL and DPL 1 of this series. These have worked satisfactorily. Disbursement of the loan proceeds would not be linked to specific purchases. The proceeds may be used for any purpose, in support of the Program, other than to finance excluded expenditures (as defined in the loan agreement). Pursuant to the legal agreements for this operation, India (in its capacity as the borrower of the loan) and HP will undertake not to use the proceeds to finance any excluded expenditures. If any amount of the loan proceeds are used to finance excluded expenditures, the legal agreements will authorize the Bank to require India or HP (through India) to refund the amount.

**108. The financing terms and conditions for the CTF loan will be reflected in a legal agreement between GoI and the Bank.** The lending instrument will be a CTF soft-term loan, which entails a forty (40) year maturity (including a ten (10) year grace period) a Service Charge of one fourth of one percent per annum (0.25%) and a Management Fee equal to forty-five one hundredth of one percent (0.45%) of the loan, to be paid as a lump sum within 60 days after effectiveness/capitalized and paid out of the loan proceeds upon effectiveness.

### **Consultations/ Monitoring and Evaluation**

**109. GoHP has always recognized the need for intensive stakeholder consultations.** In an effort to improve its inclusive green growth and sustainable development program, the GoHP sought inputs from civil society and other key stakeholders through a series of public consultations. The series of consultations show the intent to seek inputs, and the ownership of the GoHP with regard to the emerging policy framework. During the consultation, there was general support for HP's shift towards environmental sustainability and the promotion of improved management of natural resources. Local civil society and stakeholder groups were supportive of the shift towards assessing and managing environmental risks at the river basin level, and implementing a benefit sharing policy through annuity cash transfers for hydropower projects, but also wanted to be consulted on the implementation of the policies and application at the project level. Lastly, community groups were particularly interested in the potential positive impact of community based integrated watershed management and recommended to GoHP that the benefits of the proposed operation be clearly communicated throughout the State. The consultation process is continuing during this program implementation. Consultations around the CEIA Studies being conducted for the Satluj and Chenab basins have been held. For the Satluj, these were conducted in Shimla (in October 2012 and August 2013 and in Rampur in December 2013; for the Chenab, these were conducted in April and October 2013 in Shimla. A consultative meeting on Reducing emissions from deforestation and forest degradation (REDD+) issues was also held in Shimla in October 2013. The details are included in the Annex on Environmental and Social Assessments. A high-level committee headed by the Chief Secretary (highest ranking official of State administration) is due to monitor and implement agreed DPL policy actions, with

DEST responsible for the multi-sector coordination. This is also the first DPL operation funded by CTF and therefore subject to certain level of scrutiny.

## VI. SUMMARY OF RISKS

110. **This series of DPLs is anticipated to deliver overall inclusive green growth and sustainable development benefits** but there are certain risks that emerge from the operation. The main risks under the different categories and the corresponding responses to mitigate risks are as follows:

111. **Political and governance (moderate risk)**: Careful consideration has been given to political economy factors in the design of the policy reforms. There is strong multi-party support among the major political parties and a growing consensus that a paradigm shift towards a sustainable economic growth model would be universally beneficial for the State. Political and governance risk is therefore low and requires no mitigation.

112. **Institutional (substantial risk)**: Traditionally, the State has had limited focus on environmental sustainability issues in its sector policies, and monitoring and evaluation on these issues is also weak. This risk has been largely mitigated through a high level committee headed by the Chief Secretary (Highest ranking official of State administration) to monitor and implement agreed DPL policy actions. The emission reductions achieved in the hydro sector through these transformative policy reforms will be monitored and reported by Directorate of Energy of GoHP at every six months. Technical Assistance is being sought to support monitoring of results beyond DPL time lines.

113. **Operational design, implementation and sustainability (moderate risk)**: The program's objectives are ambitious and require continual effort over a significant period of time before the inclusive growth and sustainable development paradigm gets established. In order to help alleviate these constraints, the GoHP has built the capacities of the Department of Energy and Environment for effective coordination and implementation by increasing the staffing levels and bringing in technical experts in the areas of environmental management.

114. **Reputational (substantial risk)**: The DPL program aims to support GoHP in the improved management of its natural resources across key sectors that are the growth engines of its economy (i.e. energy, industry and tourism). The thrust of the DPL program is on facilitating the adoption of policy and institutional reform actions that will make the state's development plans more environmentally sustainable and socially responsible. Possible risk to the Bank's reputation can accrue only in the event that these actions are not sustained. This risk is potentially mitigated by the fact that there has been consistent ownership in the state (including across the political spectrum as evidenced by the fact that two different political coalitions have supported the two phases of the DPL) for improved stewardship of its natural resources. Consultations with other stakeholders conducted by the government have also revealed a demand for these actions aimed at promoting the long-term sustainability of Himachal Pradesh's growth agenda. However, given the inherent complexities, especially vis-à-vis the fragile natural environment, the risk rating is retained as Substantial.

115. **Specifically, this operation is supporting GoHP to ensure it has a sound system in place** for managing the environmental and social aspects pertaining to hydro power development (as well as development of tourism and industry in the state). The assessment of cumulative risks, and the management of those risks based on an integrated basin level approach, as well as policies to monitor compliance with environmental flows are being supported under this DPL. In addition the operation will support the proactive involvement of local communities at the policy stage, and the implementation of novel benefit sharing mechanisms for affected communities to ensure improved livelihood outcomes. It is worth mentioning that the GoHP will call for an independent review by a Panel of Experts of the State's compliance with the environmental and social framework supported by this program – which bolsters the strictly environment-and-people-focused actions of the program. The state is developing a communication strategy on hydropower.

## ANNEX 1: DPL RESULTS MATRIX

Prior actions and Triggers		Results
Prior Actions under DPO 1	Prior Actions for DPO 2	
<i>Goal: A--- Increased adoption of environmental and social parameters in hydropower development</i>		
<p><b>Prior action #1</b> The GOHP's Cabinet has approved and issued public notification regarding the requirement to undertake cumulative impact assessment studies for the Sutlej, Beas, Ravi, Yamuna and Chenab river basins in Himachal Pradesh, such studies to include the review of environmental flows.</p>	<p><b>Prior Action # 1</b> GoHP has designed, adopted and implemented a web-based real-time monitoring system for project milestones, including those relating to environment and social parameters and environmental flows.</p>	<p><b>Result Indicator baseline</b> ( June 2009)- None</p> <p><b>Result Indicator target</b> (December 2014) – 10% operational out of 112 projects</p> <p>Percentage of operational projects that have minimum environmental flow policy applicable and have adopted real time monitoring.</p>
<p><b>Prior action #2</b> The GOHP has approved an integrated catchment area treatment plan for the Sutlej river basin, and has started its implementation.</p>	<p><b>Prior Actions # 2</b> GoHP has (i) carried out an interim review of the on-going cumulative environmental impact assessment study of the Sutlej river basin; and (ii) developed a concurrent action plan.</p>	

<p><b>Prior action #3</b> The GOHP's Cabinet has approved and issued a public notification of amendment to Local Area Development Fund (2009) establishing a long-term benefit sharing policy requiring the provision of annuities to affected communities during the lifetime of hydropower projects in Himachal Pradesh.</p>	<p><b>Prior action # 3</b> GoHP has adopted and implemented a benefit sharing scheme to complement the Local Area Development Fund, by initiating the payment of Cash Transfers to Eligible Beneficiaries.</p>	<p><b>Result Indicator baseline</b> ( June 2009) – None <b>Result Indicator target</b> (December 2014) 5000 people  Number of people benefiting from direct cash transfer program under LADF policy</p>
<p><b>Goal :B--- Promote sustainable development through climate change-related adaptation and mitigation actions</b></p>		
<p><b>Prior action #4</b> The GOHP's Cabinet has made public disclosure of the first state-level greenhouse gas (GHG) inventory, as part of the State's comprehensive Action Plan on Climate Change that identifies co benefits in mitigation and adaption, in particular with regard to rural livelihoods improvements.</p>	<p><b>Prior Action # 4</b> GoHP has prepared and publicly disclosed Himachal Pradesh's comprehensive Action Plan on Climate Change.</p>	<p><b>Result Indicator baseline</b> ( June 2009) None <b>Result Indicator target</b> (December 2014) Climate Change -4 Departments. PES-1 Departments.  Number of Departments begin integrating State Climate Change Strategy and Action Plan in development plans and PES in their operational strategy.</p>
<p><b>Prior action #5</b> The GOHP's Cabinet has issued a Decision to enhance and operationalize the capacities in the Department of Environment and the Department of Energy for effective coordination, monitoring and evaluation of carbon neutrality objectives.</p>	<p><b>Prior Action # 5</b> GoHP has: (i) carried out a state-wide ecosystems evaluation analysis, and (ii) issued notification<sup>15</sup> of a state policy on payments for ecosystem services</p>	
<p><b>Goal: C – Increased local communities participation in development of watershed management</b></p>		

<sup>15</sup> Notification means government order issued based on approval by Cabinet or concerned Government Department before publishing in State Gazette.

<p><b>Prior action #6</b> The GOHP's Department of Rural Development has adopted the strengthened Integrated Watershed Management Program (IWMP) guidelines to specify an integrated community-led watershed development approach to planning by Gram Panchayats applicable in hilly terrains.</p>	<p><b>Prior Action # 6</b> GoHP has: (i) begun the implementation of the IWMP Guidelines, by preparing through a multi-disciplinary team, and adopting, integrated Micro-Watershed Development Plans (one per Block); which plans are publicly monitored and disclosed in AGiSAC's website; and (ii) prepared and commenced the implementation of a capacity building plan for stakeholders departments.</p>	<p><b>Result</b>      <b>Indicator</b> <b>baseline</b> ( June 2009) None <b>Result</b>      <b>Indicator</b> <b>target</b> (December 2014) 77 micro watersheds  Number of micro watershed catchments which have developed integrated community-led watershed development plans in place.</p>
<p><b>Prior action #7</b> The GOHP's Cabinet has approved and issued the State Organic Farming Policy.</p>	<p><b>Prior Action #7</b> GoHP has amended the HP Water Policy-2005 through the notification of the new HP Water Policy-2013 for the sustainable management of HP water resources.</p>	
<p><b><i>Goal: D – Increased adoption of Sound Environmental Management Practices in industrial development.</i></b></p>		
<p><b>Prior action #8</b> The GOHP's Cabinet has approved and publicly disclosed the amendment to Industrial Policy (2007) to promote sound environmental management, including (i) promotion of cleaner production and environmental management systems consistent with internationally recognized standards (e.g. ISO 14000); (ii) adoption of disclosure practices (energy audits ); and (iii) disincentives to industries on negative list.</p>	<p><b>Prior Action # 8</b> GoHP has designed and issued notification on economic instruments for incentivizing the adoption of cleaner technologies, including disincentives to industries identified in the Negative List (which largely consists of polluting industries).</p>	<p><b>Result</b>      <b>Indicator</b> <b>baseline</b> ( June 2009)- 10% <b>Result</b>      <b>Indicator</b> <b>target</b> (December 2014) 20%  Percent of industries that have adopted environmental management systems in the state.</p>
<p><b><i>Goal :E – Increased adoption of sound environmental management practices in tourism development</i></b></p>		

	<p><b>Prior Action # 9</b> GoHP has amended the Tourism Policy-2005 through the adoption of the Sustainable Tourism Development Policy-2013 in order to ensure the environmental sustainability of the activities in the sector, including the use of economic instruments to internalize environmental externalities of tourism.</p>	<p><b>Result baseline</b> ( June 2009) - None <b>Result Indicator target</b> (December 2014) Three towns  Number of towns adopting environmentally sustainable tourism development plans and practices.</p>
	<p><b>Prior Action # 10</b> GoHP has commenced the implementation of sustainable tourism practices in Himachal Pradesh.</p>	
<p><b><i>Goal:F - Improved Integration of GIS mapping and Decision making in the state.</i></b></p>		
<p><b>Prior action #9</b> GoHP has established Aryabhata Geo-Informatics and Space Application Centre (AGiSAC) to promote integrated GIS mapping and decision making.</p>	<p><b>Prior Action # 11</b> GoHP has issued an Order operationalizing AGiSAC's protocols for monitoring and evaluation of activities in the infrastructure and natural resources management sectors, including the integration of geo-informatics technology.</p>	<p><b>Result baseline</b> ( June 2009) None <b>Result Indicator target</b> (December 2014) 9 Departments  No. of Departments using AGiSAC for their strategy and planning purposes.</p>

## ANNEX 2: LETTER OF DEVELOPMENT POLICY

डा० अरविन्द मायाराम, भा.प्र.से.  
सचिव  
Dr. ARVIND MAYARAM, IAS  
Secretary



भारत सरकार  
वित्त मंत्रालय  
आर्थिक कार्य विभाग  
नॉर्थ ब्लॉक, नई दिल्ली - 110 001  
Government of India  
Ministry of Finance  
Department of Economic Affairs  
North Block, New Delhi - 110 001  
Tel. : 91-11-23092611 Fax : 91-11-23094075  
E-mail : arvind.mayaram001@gmail.com  
secy-dea@nic.in

D.O.No.3/1/2009-FB.VIII  
August 13, 2012

Dear Dr. Kim,

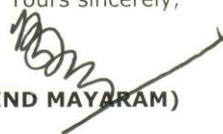
I am attaching a letter of Development Policy dated 20<sup>th</sup> July, 2012, from Chief Secretary, Government of Himachal Pradesh. The letter outlines the policies and related actions through which the Government of Himachal Pradesh proposes to promote inclusive green growth and sustainable development in the State of Himachal Pradesh. These are an ambitious set of policies and related actions towards sustainability across the key engines of economic growth in the State.

2. For this purpose the State Government of Himachal Pradesh has sought an assistance of US\$ 200 million, of which US\$100 million is proposed for financing through IBRD loan. The balance US \$ 100 million has been posed for financing under the CTF.

3. Government of India supports this continued initiative and commends the proposal of US \$ 100 million assistance (as a Development Policy Loan) for consideration of the World Bank.

*Best wishes,*

Yours sincerely,

  
(ARVIND MAYARAM)

**Encl: As above**

**Dr. Jim Yong Kim**  
President  
The World Bank  
1818 H Street, NW  
Washington DC 20433  
USA

En Copy  
INEAV-2012-000

Sudripta Roy, IAS  
Chief Secretary



Government of Himachal Pradesh Shimla-171002  
Tel: (O) 0177-2621022  
Fax: 0177-2621813  
E-mail: [cs-hp@nic.in](mailto:cs-hp@nic.in)

Date Received..... July 31, 2012  
Project / Task.....  
Project / Task ID..... P124041  
Action.....  
Copy To.....

DO No. PS/Pr. Secy/2012-Finance  
Dated: the 20<sup>th</sup> July, 2012

Subject: Himachal Pradesh Development Policy Loan to Promote Inclusive Green Growth and Sustainable Development-reg.

Dear

You are aware that the Government of Himachal Pradesh has requested Development Policy Loan of US \$ 200 million with the assistance of World Bank. In the above context, several rounds of discussions have been held with the World Bank team, and a list of prior actions for the loan were mutually finalized. The State Government has successfully completed the prior action points which have been identified by the World Bank as 'condition precedent' for the phase-I in the series.

The State Government is seeking this DPL to support the policy reform program of the State and to promote a paradigm shift towards a more sustainable economic development model that would gel with the State's comparative advantage and abundant natural resources. The objective of the proposed Development Policy Loan (DPL) is to support Government of Himachal Pradesh to undertake critical policy actions with monitorable results, particularly with regard to the energy sector, tourism, industrial and rural development. As requested by the Department of Economic Affairs (DEA), the DPL has been designed to able to access the IBRD and the Clean Technology Fund (CTF).

The program of reforms undertaken by the Government of Himachal Pradesh is aimed at generating growth through the improved management of its natural assets across growth engines of the economy and to promote inclusive green growth and sustainable development. It is anticipated that this DPL will further deepen the reform program, and contribute to several outcomes. In the energy sector, the reforms will enable the State to harness hydropower potential in a sustainable and environment friendly manner. Himachal Pradesh will also implement an innovative benefit sharing scheme based on annuity payments to affected communities during the lifetime of each hydropower project.

G.D.'S Incoming Mail	
Date:	23/July/2012
For action:	
CC:	

1/2

The watersheds of the major north Indian rivers sustain life and support the agrarian economy of over 200 million people in Haryana, Punjab, Uttar Pradesh and Rajasthan. As part of the DPL, the GoHP intends to promote micro-water watershed conservation and development approaches that would contribute to alleviating rural poverty and improve water pondage, crop diversification, productivity and water efficiency in at least one Gram Panchayat per Block.

Managing emissions from industry and promoting cleaner forms of economic growth will be essential to meet the inclusive green growth and sustainable development goal of the State. Himachal Pradesh also has considerable unrealized ecotourism potential for developing these cleaner sources of growth. The reforms will also enable the use of economic instruments for pollution control in the State.

There is strong ownership of the proposed reforms across the departments in the State, and teams have been mobilized to implement the same. In addition, the State is committed to monitor the results and adjust the program as may be required from time to time.

Given the above context, we request that the Ministry of Finance to give us full support to pursue our policy reforms through the Development Policy Loan from the World Bank. Considering that the technical discussions have been undertaken with the Department of Economic Affairs, Ministry of Finance, Ministry of Environment & Forests, Government of India and the World Bank team, and all prior actions have been met by the State Government, I would, therefore, request you for early approval and disbursement under this DPL.

Yours faithfully,

(Sudripta Roy)

**Sh. R. Gopalan, IAS**  
Secretary,  
Department of Economic Affairs, Ministry of Finance,  
North Block, New Delhi.

Endst. No. As above

Date: Shimla-2 the 20<sup>th</sup> July, 2012

✓ Copy to Mr. N. Roberto Zaghera, country Director, India for the World Bank, 70 Lodhi Estate, New Delhi-10003.



Chief Secretary to the  
Government of Himachal Pradesh

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**ANNEX 2A: GOVERNMENT OF HP'S INCLUSIVE GREEN GROWTH AND SUSTAINABLE DEVELOPMENT PROGRAM**

<b>Objectives and Goals</b>	<b>Program Actions 1</b>	<b>Program Actions 2</b>	<b>Results Indicators</b>	<b>Technical Assistance</b>	<b>Long Term Outcomes</b>
11.1 Promote environmentally sound hydropower development	<p><b>GoHP Cabinet approval and a public notification has been issued by the Department of Power regarding the requirement to undertake Cumulative Environmental Impact Assessment (CEIA) studies for the five key river basins in the State (Sutlej, Beas, Ravi, Yamuna and Chenab), which includes review of environmental flows and initiation of CEIA for Sutlej Basin</b></p> <p>Preparation of basin wide digital GIS based hydropower potential maps for the state</p> <p><b>The GOHP has approved an integrated Catchment Area Treatment (CAT) plan for the Sutlej river basin and started its implementation, and initiated preparations of integrated CAT plan for Chenab River Basin</b></p> <p>Bidding process for allotment of new hydro projects streamlined</p>	<p><b>Design, adoption and implementation by State Department of Energy of a policy of web based real-time monitoring of project milestones, including those relating to environment and social parameters and environmental flows</b></p> <p><b>Interim review of ongoing Sutlej CIA study leading to the development of concurrent action plan</b></p> <p>Adoption and implementation of comprehensive communication strategy for environmentally and socially sound hydropower development</p> <p>Finalization of integrated CAT plan for second river basin</p>	<p>Review by Panel of Experts of State's compliance with environmental and social / economic development policies supported by this program and E.P. Act of GoI</p> <p>Avoided thermal generation of 11,300,000 MWh by FY2014 against a 2011 baseline</p> <p>Verification of environmental flows in compliance with policy and regulations</p> <p>Demonstration of actions to address non-compliance with environmental flow requirements</p> <p>Implementation progress of Integrated CAT Plan in Sutlej</p>	<p>Analysis of monitoring and institutional mechanisms for appropriate in-stream flows, sharing of international experience on good practices for cumulative environmental impact assessment</p>	<p>10% reduction in the lead time required from start of bidding to commissioning of hydropower project by 5 years</p> <p>Increased contribution of hydropower generation by 10 GW by 2023 contributing to the fiscal health of the state</p>

Objectives and Goals	Program Actions 1	Program Actions 2	Results Indicators	Technical Assistance	Long Term Outcomes
11.2 Promote socially sound hydropower development	<p><b>Cabinet has approved and GoHP's Department of Power has issued a public notification of amendment to Local Area Development Fund (2009) to include a long-term benefit sharing policy to provide annuities to affected communities during the lifetime of hydropower projects within the state</b></p>	<p><b>Cash transfers for at least one hydropower project have begun</b></p>	<p>Finalization and disclosure of list of eligible families for cash transfers under new LADF guidelines for the first hydro project by FY2014 illustrated through AGiSAC</p> <p>Local area development works for 75 percent of funds deposited to the LADF as of March 312012 in the amount of 1500 million rupees (US\$ 30 million)are approved by Local Area Development Committees (LADCs) by March 2013</p> <p>Cash transfers of 50 million rupees (US\$ 1 million) transferred to project affected peoples by 2014</p>	<p>Poverty and social impact analysis / monitor and evaluate innovations in benefit sharing</p>	
2. Promote sustainable development through climate change related adaptation and mitigation actions	<p><b>GoHP Cabinet decision to enhance and operationalize the capacities in the Department of Environment and Department of Energy for effective coordination, monitoring and evaluation</b></p> <p>Adoption of operational strategy for the Community Led Assessment,</p>	<p><b>Preparation and public disclosure of State's comprehensive Action Plan on Climate Change that identifies co-benefits in mitigation and adaptation, in particular with regard to rural livelihoods improvements</b></p> <p><b>Ecosystems evaluation analysis</b></p>	<p>Reduction in GHG emissions intensity with respect to the state GDP, including monitoring of the CLAP program for Environment Protection and Sustainable Development</p> <p>Sustainable Management of forests as per agreed</p>	<p>Natural capital cost accounting targeted at the forestry sector</p> <p>South –South Exchange on subnational environmental and climate change management</p>	

Objectives and Goals	Program Actions 1	Program Actions 2	Results Indicators	Technical Assistance	Long Term Outcomes
	Awareness, Advocacy and Action Program (CLAP) for Environment Protection and Sustainable Development in the State	<b>and issuance of state policy on payment for environmental services based on pilots</b>	methodology for REDD+  Improvements in energy efficiency of designated entities and consumers		
3. Empowering local communities and stakeholders to promote integrated watershed management as an instrument for rural poverty reduction through improvements in the productivity and climate resilience of natural resources.	<b>Adoption of strengthened Integrated Watershed Management (IWMP) guidelines by the Department of Rural Development to specify an integrated community-led watershed development approach to planning by plans for Gram Panchayats applicable to hilly terrains</b>  <b>GoHP Cabinet approval and issuance of State Organic Farming Policy</b>	<b>Preparation and adoption of integrated micro-watershed development plans (one per block) by a multi-disciplinary team (using IWMP guidelines) under the leadership of Rural Development Department and independently monitored by AGiSAC</b>  <b>Preparation and commencement of implementation of capacity building plan for stakeholder departments</b>  <b>Amendment of HP State Water Policy of 2005 for sustainable management of State water resources</b> Review of effectiveness of multilevel institutional structure to promote integrated watershed management and rural livelihoods and carry out amendments as required  Preparation of a strategy on	Implementation of 77 integrated micro-watershed development plans resulting in the following as compared to baseline as measured in the individual watershed plans:  (i) 15 percent improvement in water pondage in 77 GPs by 2014  (ii) 5 percent increase in crop diversification in 77 GPs by 2014  (iii) 5 percent increase in productivity of crops in 77 GPs by 2014, if there are no natural disasters that impair yields  (iv) Water efficiency in 77 GPs increased by 10 percent by 2014  (v) 77 agribusiness groups established in association with	Sharing of international experience on water policy	30 % increase in area coverage under organic farming over the current base by 2020 30 % increase in area adopting integrated pest management by 2020

Objectives and Goals	Program Actions 1	Program Actions 2	Results Indicators	Technical Assistance	Long Term Outcomes
		<p>diversification of farming systems</p> <p>Certification protocol for organic farming in the State</p>	<p>implementation of watershed plans to link products to markets</p> <p>Enhanced synergy of central and state sponsored rural livelihoods, agriculture, forestry and horticulture, etc. programs and implement locally appropriate solutions to promote sustainable watershed management</p>		
<p>4. Promote environmentally sustainable industrial development by reducing pollution of existing industrial plants and promoting cleaner sources of economic growth.</p>	<p><b>GoHP Cabinet decision and public disclosure of amendment to Industrial Policy (2004) that promotes sound environmental management including (i) promotion of cleaner production and environmental management systems (ii) disincentives to industries on negative list (iii) Promote public disclosure of pollution status at the unit and cluster level</b></p>	<p><b>Design and pilot by State Department of Industrial Development of economic instruments for industrial pollution control for selected priority pollutants, including a mechanism of levying green cess on industrial polluting units</b></p> <p>Design of economic instruments to address of one priority pollutant and incentives for cleaner production based on economic efficiency criteria</p>	<p>More than 10 percent reduction in growth rate of establishment (in HP) of polluting industries on negative list, compared to 2000-2011</p> <p>Increase of 10 percent in annual growth rate of industries that have adopted environmental management systems (e.g. ISO 14000) and/or shown transition to lesser pollution or increased cleaner production by 2014 compared to 2000-2010 annual growth rate</p> <p>Submission of policy for use of economic instruments for</p>	<p>Assessment of economic instruments to promote cleaner sources of growth and to reduce pollution from existing industrial plants</p>	<p>50 % of medium and large industries have adopted cleaner production and environmental management systems within 10 years</p>

Objectives and Goals	Program Actions 1	Program Actions 2	Results Indicators	Technical Assistance	Long Term Outcomes
			<p>addressing industrial pollution to relevant Government body for approval</p> <p>Public availability of database on environmental performance of highly polluting industries</p> <p>Submission of policy for use of economic instruments for addressing industrial pollution to relevant Government body for approval</p>		
<p>5. Promote environmentally sound sustainable and inclusive tourism development</p>	<p>Establishment of a multi-sectoral task force to facilitate tourism development</p> <p>Preparation of an integrated Master Plan for tourism development, which promotes environmental sustainability</p>	<p><b>Amendment of Tourism Policy 2005 to incorporate environmental sustainability including the use of economic instruments to internalize environmental externalities of tourism</b></p> <p><b>Commencement of sustainable tourism practices in the state</b></p>	<p>Commencement of sustainable tourism intervention in one tourist destination (including wastewater treatment and solid waste management) and finalization of implementation plan for three additional tourist destinations with firm commitment of timely implementation and government's financial support wherever needed for actual implementation</p>	<p>Strategic Environment Assessment of Sustainable Tourism Practices</p>	<p>increase the contribution of tourism to GSDP to 15 percent by 2020</p>

Objectives and Goals	Program Actions 1	Program Actions 2	Results Indicators	Technical Assistance	Long Term Outcomes
6. Establishment of Institutional Mechanism for scientifically based sustainable development in the state	<b>Establishment of Aryabhata Geo-Informatics and Space Application Centre (AGiSAC) to promote integrated GIS mapping and decision making</b>	<b>Government Order on operationalizing of protocols for monitoring and evaluation by AGiSAC for infrastructure and natural resources management sector and integration of geo-informatics technology</b>	AGiSAC to develop web-based/ desk top applications for informed decision making for 18 government departments		The entire state to be mapped at 1:10 000 or larger scale by 2020 and this is to be used for integrating decision making for sustainable development

**ANNEX 2B: APPROVED CTF ELIGIBILITY DOCUMENT**

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**Government of Himachal Pradesh (GoHP)  
Background Paper on Eligibility to the Clean Technology Fund**

**November 1, 2013**

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List of Conversions used:

1 USD = Rs.54.5

1GWh = 1000 MWh

CO<sub>2</sub> Emission/MWh = 0.78 ton of CO<sub>2</sub> (As per CEA's CDM – CO<sub>2</sub> Baseline Database)

1 Lac = 1, 00,000 (One Hundred Thousand)

1 CRORE = 10,000,000 (TEN MILLION)

## Summary of Indicative Impacts of Supported Reform Program

Key Indicators	Incremental Regional Impact under Scenario B <sup>16</sup>	Incremental Regional Impact under Scenario C <sup>17</sup>	Incremental Regional Impact under Scenario D <sup>18</sup>	Incremental National Impact
<b>Accelerated Hydropower generation capacity (MW)</b>	1334 MW by 2032	4295 MW by 2032	5760 MW by 2032	5880 MW by 2032 <sup>19</sup>
<b>Additional Power generation (GWh/yr)</b>	5259	16931	20184	23179
<b>Avoided CO<sub>2</sub> over lifetime (MT Co<sub>2</sub> Eq.)</b> <i>(% carbon saving w.r.t BAU)</i>	72 (by 2032) (31.7%)	171 (by 2032) (73.9%)	216 (by 2032) (93.2%)	151 (by 2032)
<b>Average Annual CO<sub>2</sub> savings during the lifetime (MT CO<sub>2</sub> eq.)</b>	3.78	9.00	11.37	7.94
<b>Financing/Leveraging Amount (Mn USD)</b>	2158 Mn USD <i>(100 Mn CTF, 100 Mn IBRD, 587 Mn Equity Financing, 1371 Mn Debt Financing)</i>	6505 Mn USD <i>(100 Mn CTF, 100 Mn IBRD, 1892 Mn Equity Financing, 4413 Mn Debt Financing)</i>	8655 Mn USD <i>(100 Mn CTF, 100 Mn IBRD, 2536 Mn Equity Financing, 5919 Mn Debt Financing)</i>	8831 Mn USD <i>(100 Mn CTF, 100 Mn IBRD, 2589 Mn Equity Financing, 6042 Mn Debt Financing)</i>
<b>CTF Investment Leverage Ratio (for every \$1 invested)</b>	1:19.58	1:63.05	1:84.55	1:86.31
<b>CTF Cost Effectiveness US\$ (per ton of CO<sub>2</sub> avoided)</b>	1.39	0.583	0.463	0.662
<b>Environmental co-benefits</b>	<ul style="list-style-type: none"> <li>- Lower local pollution due to savings in GHG emissions from avoided thermal power generation and increase in variable renewable energy (VRE) generation as hydropower also serves as a balancing reserve.</li> </ul>			
<b>Improved energy security</b>	<ul style="list-style-type: none"> <li>- Increased hydro share.</li> <li>- Increase in VRE share: India would have significantly high renewable energy share in the overall generation mix by 2032. In addition, hydropower serves as a balancing reserve thereby promoting the deployment of VRE.</li> </ul>			
<b>Co-benefits</b>	<ul style="list-style-type: none"> <li>- Avoided reduction in coal imports by ~1-2% considering the current ratio of domestic and imported coal by 2032</li> <li>- Savings of ~2132 Mn USD in terms of coal imports by 2032.</li> </ul>			

<sup>16</sup> Scenario B, can be defined as a case wherein GoHP's already planned program for hydropower development accelerates through introduction of policy and institutional measures (supported under CTF funding) that help in improving quality of hydropower development particularly around environment and social sustainability. Under this scenario, the development of future hydropower capacity in the region will be advanced resulting timely commissioning of hydropower projects. This in the long run will also attract new investments. **Under this Scenario ~76% of the total allotted capacity (excludes foregone and unallotted projects) is likely to get commissioned by 2032.** Scenario B will be used as a basis for reporting on CTF results framework One could potentially calculate the Co-financing that has been leveraged using the following formula: 1334MW worth of power will be brought forward under this scenario (versus BAU) in the best case scenario. At Rs. 8 cr per MW, this amounts to \$1958 million. .

<sup>17</sup> Scenario C, can be defined as a case wherein GoHP's already planned program for hydropower development accelerates through introduction of policy and institutional measures (supported under CTF funding) that help in improving quality of hydropower development particularly around environment and social sustainability. Under this scenario, the development of future hydropower capacity in the region will be advanced resulting timely commissioning of hydropower projects. This in the long run will also attract new investments. **Under this Scenario ~90% of the total allotted capacity (excludes foregone and unallotted projects) is likely to get commissioned by 2032.**

<sup>18</sup> Scenario D, can be defined as a case wherein GoHP's already planned program for hydropower development accelerates through introduction of policy and institutional measures (supported under CTF funding) that help in improving quality of hydropower development particularly around environment and social sustainability. Under this scenario, the development of future hydropower capacity in the region will be advanced resulting timely commissioning of hydropower projects. This in the long run will also attract new investments. **Under this Scenario ~97% of the total allotted capacity (excludes foregone and unallotted projects) is likely to get commissioned by 2032.**

<sup>19</sup> On the basis of scenario C of the untapped potential in hydro rich Himalayan states, 2% of the potential gets accelerated by 2032.

	<ul style="list-style-type: none"> <li>- Savings of ~883 Mn USD in terms of transportation expenses of domestic coal due to avoided thermal capacity by 2032.</li> <li>- Revenue for the state in form of sale of free power royalty.</li> <li>- Replicability at other basins and states facilitating improved quality of hydropower development</li> </ul>
<p><b>Other non-quantifiable benefits</b></p>	<ul style="list-style-type: none"> <li>- Development of local industry</li> <li>- Increased employment</li> <li>- Cost reduction of electricity (only if the projects commission on time)</li> <li>- Positive impact on women and children by enabling access to modern energy services</li> <li>- Increase in total Employment and income generation in the state</li> <li>- Enhanced irrigation facility in the state in hectares/acres and the facility available to the local villagers</li> <li>- Increased reliability and availability of supply resulting in reduced outages</li> <li>- Institutional arrangements and policy developed for benefit sharing and number of people benefitted</li> <li>- Environmental benefits to the local villagers in relation to air pollution, water pollution and soil contamination</li> <li>- Enhanced infrastructure support in providing safe drinking water, basic health facility, transport network and elementary education</li> </ul>

## I. Background

GoHP's program, "**Development Policy Loan to Promote Inclusive Green Growth and Sustainable Development in Himachal Pradesh (DPL 2)**" is centered on State Government's objective to promote inclusive green growth and sustainable development, which will be supported by an ambitious effort towards sustainability across the key engines of economic growth, namely energy, watershed management industry and tourism. **This program is an extension of the first HP DPL which focused upon fiscal matters as well as the creation of Department of Environment, Science and Technology (DEST) in recognition of the importance of natural resources as drivers of growth.**

**The fiscal HP DPL (DPL 1) supported the mainstreaming of environmental actions in policy, the establishment of policy implementation capacity, and the environmental sustainable path towards hydropower development.**

Most notably this was perhaps the first time that a fiscal DPL addressed crucial environmental issues in India. The DEST created under the fiscal DPL operation is now a strong advocate on environmental issues in the State. The environmental master plan and sectoral guidelines under preparation will provide direction by mainstreaming environmental protection and conservation in development projects. Changes in the Forest Department have strengthened its ability to carry out these activities, including through outsourcing and third party monitoring. By institutionalizing this approach for the Sutlej basin, the operation raised the awareness and sensitivity for sustainable management of the State's hydropower resources. Under PFM reforms, new financial and procurement rules, greater control over treasury payments, and the use of budget software will make spending more effective. Among the achievements of the program supported by the operation was a forum for collaboration between different government departments. The DPL provided a mechanism to bring together different actors and achieve changes that cut across departments. Box 1 details out the outcome of the first DPL.

### **Box 1: Results of First - Fiscal DPL (DPL-1)**

Under the DPL-1, the program reforms undertaken by the Government of Himachal Pradesh were aimed at generating growth through the improved management of its natural assets across growth engines of the economy and to promote inclusive green growth and sustainable development. It has been anticipated that this DPL-II will further deepen the reform program, and contribute to several outcomes. In the energy sector, as clean energy sector has been prioritized as per MoEF, GoI letter dated 25-04-2011. The programs under the DPLs will enable the State to further strengthen the environment and social sustainability aspects of hydropower development program of GoHP. Himachal Pradesh will also implement an innovative benefit sharing scheme based on annuity payments to the affected communities during the lifetime of each hydropower project.

#### **Status and Achievement of DPL**

- A. The prior actions as have been envisaged under the DPL-1& 2 have led to promotion of sustainable development through climate change related adaptation and mitigation actions. These include management of forests as per agreed methodology for REDD+; improvements in energy efficiency of designated entities and consumers and a policy for PES. A comprehensive State Climate Change Action Plan has been prepared and has been disclosed on GoHP website. Evaluation analysis of ecosystems has been initiated and accordingly State policy on payment for environmental services is being drafted.
- B. Clean energy development has been initiated by adopting environmentally sound hydropower development having compliance with environmental flow requirements and completion of cumulative environmental impact assessment for different river basins. The minimum environmental flow verification has started and real time monitoring of e-flows has been initiated. The cumulative environment impact assessment reports of major river basins are being prepared, the draft CEIA reports of one major basins are ready and under peer review. The panel of experts has been appointed to oversee the sustainable hydropower development in the State.

The GoHP has approved implementation of benefit sharing policy as illustrated by initiation of cash transfers in

one hydropower project and commissioning of works mandated by community based programs. New LADF guidelines have been notified in the State to include long term benefit sharing policy.

- C. The process of empowering local communities and stakeholders to promote integrated watershed management as an instrument for rural poverty reduction through improvements in the productivity and climate resilience of natural resources besides assessment of pilots has been initiated. Furthermore, work on the revision of IWMP guidelines, and statewide adoption of community based integrated watershed management approach at the block level to improve water pondage, crop diversification, productivity, and water efficiency in at least one Gram Panchayat per block has been completed. 77 integrated micro watershed have been identified and development plans will be completed. State Organic farming policy has been prepared and notified. State Water Policy has been revised, and is under final stage of approval.
- D. Through the DPL-I environmentally sustainable promotion of industrial development by reducing pollution of existing industrial plants and promoting cleaner sources of economic growth has been initiated. The State Industrial Policy is being revised and is under final stage of approval.
- E. Tourism is one of the important economic sectors and the promotion of environmentally sound sustainable and inclusive tourism development was aimed by establishment of system and practices which promote sustainable and inclusive tourism development in the State. The State Tourism Policy has been accordingly revised. Integrated tourism master plan has been prepared which promotes environmental sustainability. Strategic environment assessment of sustainable tourism practices has been initiated and is under final stages. Effective Institutional Mechanism for scientifically based sustainable development in the state has been established, through this all departments are required to integrate decision based GIS mapping for sustainable development and inclusive growth. Under this about eighteen departments/ organizations of GoHP have already been integrated in the system.

**The Second DPL - HP IGG (Inclusive Green Growth) DPL aims to** support inclusive green growth objective and environmental and social sustainability for green growth.

This operation will also support the public disclosure of the State's comprehensive Action Plan on Climate Change and support the introduction of a novel scheme to the benefit sharing policy that would provide an annuity payment to affected households during the lifetime of hydropower projects, as well as other forms of compensation.

To address the environmental challenges of hydropower, there is a commitment to adopt a river basin approach to risk assessment and management, address cumulative impacts and establish transparent and publicly verifiable mechanisms to assure adequate ecological (environmental) river flows.

At the end of the series of HPIGGDPL, Bank' policy and institutional support which is a small subset of GoHP's broad program will put frameworks in place to contributing to the national objective of reduction of greenhouse gas (GHG) emissions intensity; to ensure compliance with environmental flow requirements including measures to address any issues of non-compliance; the completion of cumulative impact assessment for at least one river basin; and the implementation of a benefit sharing mechanism as illustrated by the issuance of cash transfers and commissioning of works mandated by community based program. Together these represent a far reaching policy transformation in the way in which hydropower development takes place in Himachal Pradesh and have potential for broader application and replication.

## II. Introduction

1. Himachal Pradesh (HP) has some specific characteristics that set it apart from other Indian states. It faces development challenge arising from its high elevation, topography, resource dependence, and ecological vulnerability—as well as from a changing and more competitive international environment. The Government of India (GoI) has given HP the status of a “special category” state in recognition of these unique constraints, under which the state is the recipient of special central grants and incentives that have been instrumental to its development.
2. Despite its structural disadvantages, HP has performed remarkably on many measures of human development. The state has some of the best indicators for development in India and from its inception in 1971; it has had a higher per capita income and better social indicators than much of the country. This has been made possible by supportive government policies, a transparent and accessible administration, an implicit social compact and cohesion, and high levels of investment in human capital. But challenges do remain – notably that of promoting inclusive development for disadvantaged groups in remote areas.
3. However, the past pattern of development in HP raises concerns about the efficiency of natural resource use, and the sustainability of development. Following the development template used in the rest of the country, the hill states have attempted to attract industries that are at times highly polluting and resource intensive (such as cement, chemicals, and pharmaceuticals), through a variety of tax incentives, concessions and subsidies. The ability to further diversify the economy is limited by topography and poor market access, which render large scale industrialization costlier and more difficult than elsewhere in India. The economic benefits of the current growth strategy – one that is dependent on public spending, financed by borrowing and central assistance – may have reached its limits.
4. The sustainability of HP’s success for the future will depend on addressing three major transitions. This has implications for other hill states/countries in the region. The first is to shift the growth strategy in HP from one that is still far too heavily dependent on public expenditure, to an increasing focus on the broad-based contribution from other sources of growth, for instance, its natural resources and tourism sectors, with an enabling environment for the private sector. The second is to create productive employment opportunities for HP’s youth and increasingly educated labor force, so that reliance on the public sector as an employer of last resort goes down. A better growth strategy and improvements in the investment climate will play a crucial role, as will efforts to strengthen the quality and skills base of the state’s labor force in order to ensure the outcome of good jobs that the state needs to sustain incomes. The third critical transition that HP will need to make is to better manage its environment and natural resources. This must take several key directions. The potential for hydropower development has to be judiciously and prudently managed to support the desired fiscal outturns and to invest in the future of the state. At the same time, the downside effects of hydropower development on the environment, especially reduced water for downstream uses, will require much improved attention to ensure that society as a whole benefits, and that development is sustainable. Furthermore, a broader environmentally sustainable strategy will be essential, for forestry development, community projects, urban management, and water supply. Failure to take action against environmental degradation in a society dependent on its natural resource base could ultimately threaten future growth prospects. It is critical to address these challenges before they start to impact on the state’s successful socio-economic performance.
5. CTF will support adoption of environmentally sustainable hydropower as well as follow up on the initiatives supported by the first tranche.

#### **A. Climate Change Adaptation and Mitigation**

6. **In 2010, HP announced its intention to shift towards a sustainable inclusive green growth model that takes into account climate change adaptation and mitigation and to join a number of subnational efforts in this regard.** The objective to shift towards sustainable inclusive green growth model that incorporates climate change adaptation and mitigation is both realistic and achievable for HP, and is unique among states in India. The state of Himachal Pradesh aims to reduce emissions across key GHG intensive sectors by promotion of cleaner production and environmentally sound management systems. In addition, HP is well endowed with hydropower potential and if harnessed in a proper manner, the proposed hydropower development program of GoHP will help reduce GHG emissions intensity in the state. An important objective of this operation is to ensure that this occurs in ways that are environmentally benign and socially beneficial.
7. **To support the development of its sustainability objective, the GoHP will begin to account for the environmental costs of development and reflect the use of depletable natural resources in the process of generating income, in particular in the forestry sector.**

#### **B. Empowering Local Communities to Promote Integrated Watershed Management**

8. **The fragile Himalayan ecosystem<sup>5</sup> in HP forms the catchment of major Indian rivers such as the Sutlej, Beas, Ravi and Yamuna.** It is an important source of water that supports about 200 million people in Punjab, Haryana, Uttar Pradesh and Rajasthan. In addition, these rivers are crucial in sustaining livelihoods and assuring food and water security (for irrigation and domestic use) across much of North India. In short stewardship of HP's natural assets is critical to the well-being of a large segment of the population of India. Hence consideration of downstream impacts is critical to the State's development strategy.

#### **C. Environmentally Sustainable Industrial Development**

9. **HP has witnessed exponential growth in industrial development.** Industrial growth in HP has been fueled by incentives provided by the central and state governments. GoHP's 2004 Industrial Policy and its 2006 amendments provided an additional impetus to industrialization through a host of subsidies including the provision of land, cheap commercial power, local labor, roads, and information technology access. But more significant in fueling industrial growth, the state's lower areas have been the central policy of a prolonged tax holiday for this state. The subsidy driven approach is however unsustainable as the experience with infant industry support has demonstrated globally. GoHP recognizes that tax breaks and fiscal incentives have led to the creation of often uncompetitive industries.

#### **D. Environmentally Sustainable Tourism**

10. **The tourism sector has shown remarkable resilience despite over-crowding in some areas and has the potential to become one of Himachal Pradesh's main drivers of economic growth.** In 2008, Himachal Pradesh received 9.37 million domestic tourists (1.6 percent of total domestic tourists in India) and 377 thousand international tourists (6.7 percent of total international tourists in India). Among Indian states, Himachal Pradesh was the 10th most visited by international tourists and 12th most visited by domestic tourists. Between 2001 and 2008, visits by domestic tourists grew by 8.9 percent and those of international tourists by 20.88 percent.
11. **The tourism sector's potential growth is intricately linked with environmental quality.** The State's unique and fragile hill ecosystem, including its protected areas, supports many of the State's most popular tourist activities, including trekking, skiing, angling, mountaineering, rafting, and watching of flora and fauna. Pollution from

wastewater and solid wastes, as well as unplanned urban growth, not only threaten the fragile ecosystem, but also reduce the attractiveness of the natural and pristine areas that tourists travel to visit. Environmental degradation is particularly impacting tourism hotspots and has become a major impediment to HP achieving its full tourism potential. A major challenge has been lack of coordination between the Tourism Department and the Departments of Urban Development, Town and Country Planning, Environment, Irrigation and Public Health in formulating a coherent strategy for improving tourism potential. While these problems are already evident, they are set to become more severe and widespread without urgent actions and adequate planning.

#### **E. Institutional Mechanism for Integration of GIS in Informed Decision Making**

- 12. In support of the need for informed decision making and greater transparency, the state has decided to invest resources to promote the use of GIS in decision making,** of particular interest is the ability of GIS systems to capture, store, analyze and manage data, and manipulate it with geo-spatial information. The state has recognized the potential of this tool to enhance decision making and improve development outcomes. In that regard, it has analyzed the successful use of such data for decision making in Gujarat and elsewhere.

#### **F. Adoption of Environmentally and Socially Sustainable Hydropower**

- 13. Hydropower is also a priority of the 12th Five-year Plan, which has the ambitious goal of building 20 GW of this renewable capacity over 2012-17.** Much of this goal could be achieved through HP. Developing replicable and robust mechanisms that address the social and environmental challenges of hydropower is especially important given the inevitability and criticality of hydropower development in India. Environmentally and socially sensitive hydropower development would also have fiscal benefits for states in the form of non-tax revenue for states that supply that power.

**DPL 2 directly deals with several of the above measures and also indirectly supports the remaining institutional and policy measures of GoHP described above.**

14. Climate change is affecting and will continue to affect hydropower development. Presently, increased glacier melt is providing some additional flows but this will likely be offset by reduced contribution from snow fall in the medium term and by likely reductions in glacier melt flow in the longer term (ADB, 2010). Silt in the rivers is a major problem (silt levels during flood in the Satluj river exceed 100,000 ppm) and will become more serious as rainfall intensity increases. Many hydropower projects run at low load factors which may reduce further under future climatic conditions. Hydroelectric plants have to close when silt levels get too high as it happened during the recent unseasonal rainfall in June (see Box 2).

#### **Box 2: Climate Change Impacts**

With current climate change mitigation policies and related sustainable development practices, global greenhouse gas (GHG) emissions will continue to grow over the next few decades. Continued GHG emissions at or above current rates would cause further warming and induce many changes in the global climate system during the 21st century that would very likely be larger than those observed during the 20th century. The pattern of future warming where land warms more than the adjacent oceans, and more in northern high latitudes, is seen in all IPCC scenarios.

Some systems, sectors, and regions are likely to be especially affected by climate change. These include mountain ecosystems, water resources in some dry regions at mid-latitudes and in the dry tropics, areas dependent on snow and ice melt, agriculture in low-latitude regions, and human health in areas with low adaptive capacity. Impacts are very likely to increase due to increased frequency and intensity of some extreme weather events. Recent events have demonstrated the vulnerability of some sectors and regions, including cloud bursts, heat waves, tropical cyclones,

floods, and drought.

In 2012, the World Bank released a report– Turn Down the Heat – which concluded the world would warm by 4°C by the end of this century if concerted action was not taken now. A new report, released today, spells out an alarming scenario that could unfold as a result of global warming.

Recently, a sequel to the 2012 report - Turn down the Heat: Climate Extremes, Regional Impacts and the Case for Resilience - was released. The report looks at the likely impact of warming on agricultural production, water resources, coastal and mountain ecosystems and cities across three regions - South Asia, Sub-Saharan Africa, and South East Asia. It assesses impacts at present day temperatures of 0.8°C above pre-industrial levels, as well as in a world that is warmer by 2°C and 4°C.

The 2013 report finds that if the world warms by 2°C - which may happen within the next 20 to 30 years - widespread food and water shortages could unfold, together with prolonged droughts, unprecedented heat-waves, more intense rainfall and flooding, and a significant threat to energy production. These are not challenges looming at the end of the century, according to the report. Rather, severe impacts can begin to appear within the next 10-20 years, within the span of the current generation. Already, a warming trend has begun to emerge over South Asia, and India's large and growing population is experiencing water stress in many parts.

Increasing temperatures, changing rainfall patterns, declining snowfall, retreating glaciers, and declining groundwater can make the situation even worse. Impacts can be aggravated by rising sea-levels and more intense tropical cyclones, precipitating a major crisis for food security and the rural economy.

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15. The hydropower potential of the state is estimated to be about 27,436 MW i.e. about twenty five percent of the national hydropower potential. The drainage system of Himachal is composed both of rivers and glaciers. The state provides water to both the Indus and Ganges basins. The drainage systems of the region are the Chandra Bhaga or the Chenab, the Ravi, the Beas, the Sutlej and the Yamuna. **Himachal Pradesh is naturally suited for hydropower generation and accounts for over 30% of India's total hydropower potential in the Northern Region.**
16. The state government has been according hydropower the highest priority for its development, since hydropower generation can meet the growing needs of power for industry, agriculture and rural electrification. The abundance of perennial rivers enables Himachal to sell hydropower to other neighboring states such as Delhi, Punjab and Rajasthan, etc. It is also the largest source of income to the state. **The GoHP is developing a comprehensive policy and institutional framework through the Programmatic Inclusive Green Growth DPL series.**
17. The GoHP recognizes the importance of hydropower in bringing prosperity to Himachal Pradesh. Till 1991, generation was only in the hands of central and state agencies. Post liberalization of the economy, Himachal Pradesh was the one of first states to allot a project to the private sector.<sup>20</sup>. Today much of the capacity has been allocated and is in implementation stages. However, GoHP also recognizes that attendant environmental and social aspects need to urgently addressed in addition to ensuring that all the projects in the state are completed in time so that both cost and time overruns are avoided and benefits reaped at the earliest..
18. Himachal Pradesh is emerging as a model in the country and for the region and seeks to attain the objective of becoming a “powerhouse” of the nation aiming to provide adequate, clean, reliable and quality power at

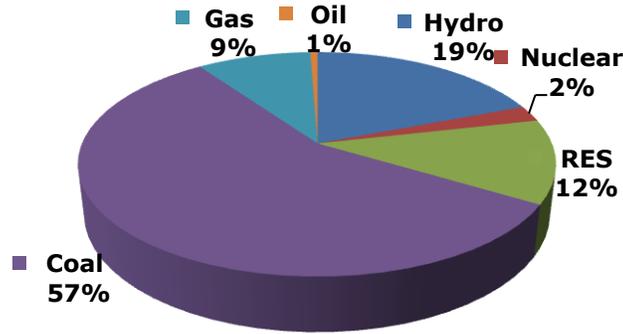
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<sup>20</sup> Government of India is committed to cut its carbon intensity by 20-25 per cent from 2005 levels by 2020

competitive rates to consumers with the objective of promoting economic growth while sustaining the high Human Development Index (HDI). It has achieved its objective and is committed to improving it further.

19. At the same time, GoHP wants to ensure that the development of hydropower happens in an environmentally sustainable, socially responsible and climate resilient manner (GoHP State Climate Change Strategy and Action Plan, 2012). As a step forward in ensuring environmental sustainability, the state is moving to an integrated and basin catchment area treatment approach including: (i) cumulative mitigation measures for soil erosion and landslide hazards; (ii) Redressal measures to address the problem of silt and debris load; (iii) continuous monitoring of sediment load from the tributaries directly discharging into the reservoir; and (iv) promoting scientific approach to catchment area treatment. On social sustainability, GoHP has adopted an innovative revenue sharing scheme that pays annuities to local communities living in the affected villages during the operational life of hydropower projects.
20. Also, a key part of the revised strategy has been to identify the possible directions to assess and plan hydropower development in a more integrated approach. This includes assessment of possible multipurpose uses of some of the hydropower dams as well as examining ways to improve efficiency, sustainability, and reduce environmental impacts.
21. **Hydropower potential in India is substantial and remains one of the few immediate options to address energy shortages and reduce the emissions intensity of the power sector at scale.** Coal has been the mainstay of India's power generation and continues to be the primary fuel source, **as India lacks sufficient alternate sources of domestic energy. India's current installed generation capacity (~211 GW) out of which about 67% thermal (57% coal, 9% gas and 1% oil) followed by 19% hydropower. Over the years the contribution of hydropower to the generation mix - more than 45% in 1980 - has been worsening steadily an unbalanced hydro thermal mix, with serious consequences for the Indian power system.**

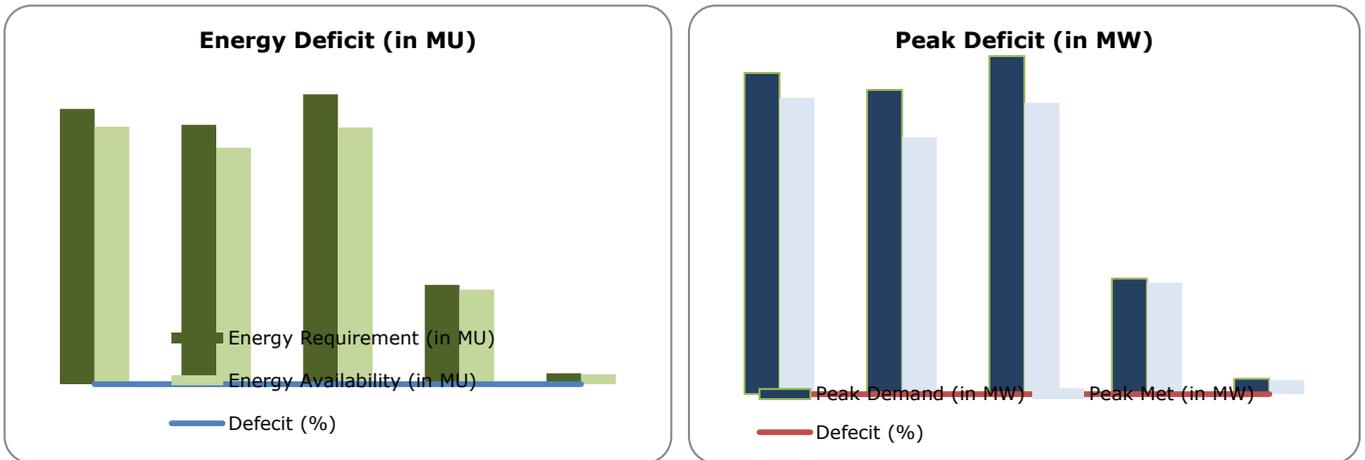
**Figure 1: Fuel-mix by Installed Capacity (as of January 2013)**



Source: Central Electricity Authority (CEA), 2013

22. With a total potential of 148,700 MW (in terms of installed capacity), hydropower remains one of the critical options to address the energy/peak shortages, limit the carbon intensity of the power sector and achieve the objective of diversification of energy sources and address energy/peak shortages in the country.<sup>21</sup> Ability of hydropower plants to respond quickly to demand fluctuations makes them the ideal electricity source to cope with demand peaks and help stabilize system frequency. Hydro generation also counterbalances the carbon intensity of the power sector and mitigates the risk of global climate change. In FY 2011-12, the country witnessed a peak power shortage of 10.6 percent and an energy deficit of 8.5 percent. Figure 2 indicates the power supply position in FY 2011-12.

**Figure 2: Regional Power Supply Position (Energy and Peak), March 2012**



Source: CEA Power Supply Position, 2012

23. Apart from serving the peaking power requirements of the country hydropower serves as a balancing reserve for the system. With increased contributions from variable renewable energy sources like wind and solar there is an

<sup>21</sup> Government of India is committed to cut its carbon intensity by 20-25 per cent from 2005 levels by 2020.

urgent need for a larger base of system flexible and fast response balancing resources. In addition, hydropower in Himachal Pradesh is located close to the high demand states of Delhi, Punjab, Haryana and Rajasthan, thus avoiding long distance power transmission and its consequences in terms of system losses and voltage drops. If India has to address its growing energy needs in an environmentally sustainable manner, and has to achieve its intent of incorporating renewable energy on a large scale as envisaged in policy (30 GW of RE is proposed to be installed in the 11th Five Year Plan between 2012 and 2017, with sharp increases thereafter), corresponding large scale hydropower development is an inescapable reality.

24. **In the backdrop of these local and national advantages, Himachal Pradesh also faces significant barriers to its plan for hydropower development.** Specific development challenges arising from its high elevation, topography, resource dependence, and ecological vulnerability need to be addressed. Despite allotting large number of hydropower projects for execution, the pace of their development in Himachal Pradesh has remained sluggish, slipping from agreed schedule due to the following key fundamental issues arising at various stages of development of a project. **It is envisaged that the HP IGG Programmatic DPL series supported by IBRD and CTF will significantly leverage policy and institutional reforms to address some of these challenges.**<sup>22</sup>. Annexure A nicely summarizes the measure being taken by GoHP through the Programmatic DPL series to ease a number of such barriers.

- a. **Long processing time for obtaining statutory clearances:** Development of a hydro power project requires a large number of consents and clearances right from the initial conceptualization of the project to the plant commissioning, which includes the environmental and forest clearances. The lack of a predictable and comprehensive regulatory framework leads to significant delays in attaining such clearances.
- b. **Delays from civil society and stakeholder concerns and grievances:** Lack of an enabling policy and legislative framework to build consensus on the State's hydropower policies among civil society and communities is another major barrier. Although there are mechanisms that deliver benefits to local communities from hydropower development, they are not often discussed and disclosed often leading to specific grievances at times lead to significant delays.
- c. **Lack of appropriate project identification:** In the past, project identification has often suffered due to projects being identified on the basis of topographical sheets in an ad hoc manner without assessing the river basin as a whole and without proper ground level verification. This results in inadequate attention to environmental concerns about riparian distance and about ecologically sensitive areas and improper assessment of hydropower potential. When such issues are raised this often results in developers getting dissatisfied with sites identified for project location, leading to disputes and frequent requests for change of project domain.
- d. **Emerging environmental and social challenges:** The Government both at the center and states such as HP have taken a number of measures in recent years to facilitate hydropower development (of special relevance to private developers are the preparation of a shelf of well investigated projects, which could substantially reduce risk perceptions), streamlining of the clearance procedures, the provisions of open access and trading as per Electricity Act 2003, etc. Efforts are also being made to make long-term debt available. While this has generated substantial interest from the Developers, at the same time, the upsurge in activity has also brought with it new set of environmental and social challenges that both the governments (center and state) are trying

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<sup>22</sup> It is important to note here that this supports only policy and institutional reforms and does not include any investments

to address. Climate change presents additional risks to hydropower development.<sup>23</sup> Further, the linkages between trends in climate and trends in glacier extent (length, area, volume, and melt volumes) are of key concern to the future water resources of Himachal Pradesh as well as of downstream states. A number of new policies and regulations are being contemplated towards more promoting environment and social sustainability:

- Requirement of minimum “Riparian Distance” of 1-2 Km between two Projects.
- Conducting the river basin studies as a requirement for granting the final forest clearance
- Enhanced quantum of discharge required to be released downstream of the diversion structure by the Developers (to 20% in place of minimum flow of 15% as per the current policy).
- More stringent environmental impact assessment requirements for obtaining forest clearance.
- Enhanced requirements for preparation of Catchment Area Treatment (CAT) Plans.
- Continuous and enhanced monitoring of mountain ecosystem and in particular the state of glaciers.<sup>24</sup>
- Recognition of community rights in the project areas.

**e. Other Issues:**

- **Land acquisition and contractual problems:** A number of projects have been getting delayed due to land acquisition and contractual problems.
- **Geological surprises:** Geological surprises such as flash floods, rockslides and landslides often impede the development process of the project.
- **Absence of adequate power evacuation and transmission infrastructure:** Uncertainty in availability of transmission lines by the time of completion of projects. **Also there are cost allocation issues for planning basin wide transmission corridors for multiple projects where the project’s commissioning is staggered over a period of time.**
- **Non availability of centralized and reliable hydrological database:** Non-availability of topo sheets of project area by the government to private developers remains a key issue affecting development
- **Lack of access infrastructure:** Development of roads & bridges to have easy access to the project sites is crucial for expediting the execution of projects and needs special attention as a large part of hydro power potential in the country is in Himachal Pradesh where accessibility to project sites is a problem due to difficult terrains and geography of the state.
- **Cost of Funds:** Investor confidence in hydro projects is fragile on account of the long gestation period, high initial capital costs, and unbalanced risk profile of the projects on account of information gaps, inherent project risks and local development issues.

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<sup>23</sup> Studies by the Himachal Pradesh Agricultural University give some indications of higher than average impacts of climate change in the Himachal Pradesh uplands than on the lowlands. From the studies covering over 30 years of records, average air temperatures were found to be 0.7 to 2.4°C higher than that in the 1980s, as against the global average of 0.5°C; the Himachal Pradesh trend indicates an increase of 0.06°C per year. An analysis of rainfall data over the period 1976 to 2006 show increasing trends of rainfall in Lahaul, Spiti, Chamba and Kangra but decreasing trends in Solan and Kinnaur. Other districts showed no significant trends. Crops are showing shorter periods of flowering and maturity (Government of Himachal Pradesh, CSK Himachal Pradesh Agricultural University, Centre for Geoinformatics, Palampur).

<sup>24</sup> Both the National Action Plan on Climate Change and HP State Strategy and Action Plan on Climate Change give particular importance to maintaining and sustaining Himalayan ecosystem.

## 25. Time & Cost Overruns:

In addition to the above constraints, most hydro projects in the state face cost and time-overruns due to a variety of reasons. Table 1 shows the time and cost overruns of projects delayed on account of various reasons in the business as usual (BAU)<sup>25</sup> scenario. This has implications not only to the developers but also for state finances.

**Table 1: Time & Cost Overrun of Delayed Plants in the BAU scenario**

Name of the Plant	Capacity (MW)	Scheduled year of commissioning	Anticipated year of commissioning	Original Cost (Mn USD)	Anticipated Cost (Mn USD)	Cost overrun (Mn USD)	Time Overrun (Years)
Kol Dam	800	2008-2010	2014-2015	830.7	1166.8	336.1	5
Parbati-III	520	2010-2011	2014-2015	422.8	498.3	75.5	3
Parbati – II	800	2009-2010	2016-2017	719.2	984.6	265.4	8
Uhl-III	100	2006-2007	2014-2015	79.2	172.6	93.4	7
Sawra Kuddu	111	2010-2011	2014-2015	102.5	216.9	114.4	4
Lamba Dug	25	2012-2013	2015-2016	24.4	34.6	10.2	3
Baner-II	6	2010-2011	2013-2014	4.9	8.3	3.4	3
Paudital Lassa	24	2011-2012	2014-2015	34.2	34.2	0.0	3
Dhamwari Sunda	70	2015-2016	2020-2021	79.7	96.8	17.1	5
Sai Kothi	15	2011-2012	2013-2014	16.0	20.7	4.8	2
Raura	8	2013-2014	2016-2017	6.8	11.1	4.2	3
Baragaon	24	2013-2014	2016-2017	28.4	33.2	4.7	3
Chirchind-II	9.9	2013-2014	2016-2017	11.0	13.7	2.7	3
Jongini	16	2012-2013	2014-2015	14.3	22.1	7.8	2
Nanti	14	2012-2013	2014-2015	14.4	19.4	5.0	2
Rala	9	2013-2014	2016-2017	9.4	12.4	3.0	2.5
Upper Nanti	12	2013-2014	2016-2017	13.1	16.6	3.5	2.5
Selti Masrang	24	2014-2015	2018-2019	35.1	35.1	0.0	4
Raura-II	20	2014-2015	2017-2018	25.9	27.6	1.8	3
Holi-II	7	2015-2016	2018-2019	8.8	9.7	0.9	3
Palchan Bhang	9	2015-2016	2017-2018	10.6	12.4	1.8	2.5
Sarsadi-II	9	2018-2019	2021-2022	10.2	12.4	2.3	3
Bajoli Holi	180	2018-2019	2023-2024	276.0	276.0	0.0	5
Uhl Khad	14	2016-2017	2019-2020	18.7	19.4	0.7	3
Himani Chamunda Thingari	9.5	2015-2016	2018-2019	12.3	13.1	0.9	3
Choned	15	2016-2017	2019-2020	18.7	20.7	2.1	3
Kutehr	240	2018-2019	2023-2024	292.4	331.8	39.3	5

Source: CEA 2012 & GoHP

<sup>25</sup> BAU scenario refers to a scenario without the DPL

**a. Impact on Revenue for the state**

26. According to the Hydropower Policy of 2006, the GoHP is entitled to royalty from hydropower projects, in the form of 12 per cent of power generated by the project for the first 12 years of project operation, 18 per cent of power generated by the project free power for the next 18 years, and 30 per cent of power generated by the project free power after 30 years of project operation. Subsequently, after 40 years of operation, the project reverts to the state free of cost. The state has also retained the right to take up equity in the new hydropower projects. In the case of JV projects, in addition to the 12 per cent royalty power, GoHP also has an entitlement of additional power proportionate to their equity stake at the regulated tariff that it can either use within the state or sell to other states.
27. Revenues from hydropower are thus a major contributor to the revenue of the state. As mentioned above, there is significant untapped hydropower potential in HP on account of the state’s water supply through five perennial rivers. Judicious exploitation of the unrealized potential in an environmentally sustainable manner and accelerated development of projects under implementation assumes particular significance, not just as a source of “green energy” that can help alleviate the power shortage in the Northern Grid, but also as a critical source of non-tax revenue for the state. As shown in table 2 the delay in commissioning of hydropower projects has resulted in significant loss of revenues for the GoHP leading to a tenuous fiscal situation. The following table highlights the loss of revenues for GoHP and the project developers. These losses have been calculated on the basis of the units of generation (free power + LADF<sup>26</sup> = 13% free power) lost due to delay in commissioning of the plant and subsequent delays in returns.

**b. Impact on Revenue for the developer**

28. Delays in commissioning of the hydropower projects impact the revenue for the developer as well. Indeed, the loss of revenue on the developer will be much higher than government. Long payback periods coupled with unbalanced risk profile skewed towards the developer make hydropower project unattractive for investment. Table 2 below shows the revenue losses for the developer. These losses have been calculated on the basis of the units of generation (apart from the free power given to HP i.e. 12% and 1% as LADF) lost due to delay in commissioning of the plant and subsequent delays in returns.

**Table 2: Cumulative Loss of Revenue<sup>27</sup> due to delay in commissioning of hydropower projects in HP**

Name of the Plant	Revenue Loss in Mn USD (GoHP)	Revenue Loss in Mn USD (Developer)	Time Overrun (years)
Kol Dam	86.8	636.5	5

<sup>26</sup> LADF: Local Area Development Fund: The Hydropower Policy was adopted by GoHP in 2006 to improve basic amenities and infrastructure facilities in the project affected villages of hydropower projects. The Policy provides for a contribution by project developers to a LADF based on final construction costs.

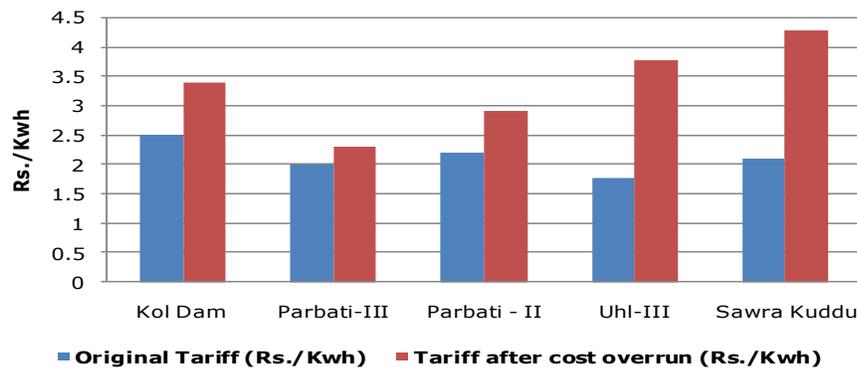
<sup>27</sup> The Revenue loss has been calculated by estimating 1<sup>st</sup> year tariff after considering the cost overruns as shown in table 1.

Name of the Plant	Revenue Loss in Mn USD (GoHP)	Revenue Loss in Mn USD (Developer)	Time Overrun (years)
Rampur	31.5	230.8	4
Parbati-III	27.1	198.6	3
Parbati – II	122.2	896.2	8
Uhl-III	10.8	79.3	7
Sawra Kuddu	8.1	59.1	4
Sainj	5.1	37.3	2
<b>Total</b>	<b>291.5</b>	<b>2137.7</b>	

Source: AF-Mercados EMI Analysis (Refer Table 1)

29. Delay in commissioning of hydropower plants also impacts the resultant tariff. Since delays cause increase in the overall cost and loss of revenue from the plant (as shown in the table 1 and 2 above), this leads to an increase in tariff in cases where the regulatory dispensation allows for pass-through of the cost overruns. In case of private sector projects where such a dispensation is not available, the project viability is seriously impacted, resulting in financing delays that further affect viability.

Figure 3: Estimated Impact of Delays on Tariff<sup>28</sup>



Source: AF-Mercados EMI Analysis (Refer Table 1)

30. For reasons of ecologically and socially secure development, early monetisation of projects for financial benefits, containment of tariffs to reasonable levels and retaining project viability, there is an urgent need to institute mechanisms and support systems that limit hydro development and construction delays and also give due care to environmental and social aspects of development. Establishment of an institutional mechanism for sustainable hydropower development including integrated basin-wide planning and monitoring and implementation of environment management activities related to hydropower development will help ensure that the project development activities happen in a timely and environmentally and socially sustainable manner.
31. Within the above context, the GoI has requested policy-based budget support as a Development Policy Loan to assist the Government of Himachal Pradesh (GoHP) to promote inclusive green growth and sustainable

<sup>28</sup> The computations are based upon the difference in tariff as a result of delay in commissioning of hydropower plants.

development and undertake a paradigm shift towards the sustainability of the main engines of growth. **The programmatic HP IGG DPL series** will ensure that project development is facilitated adequately by resolving some of the development barriers articulated earlier, while simultaneously ensuring that the environmental and social safeguards are adequately in place.

32. Himachal Pradesh is richly endowed with natural resources and this program is designed to unleash its comparative advantage of generating growth through improved stewardship of its natural assets. The program will assist GoHP in its efforts towards inclusive green growth, with transformative actions across the key engines of economic growth – energy (hydropower), watershed management, industry and tourism.

A significant number of these barriers particularly those related to environmental approvals and social issues as described above in (a), (b), (c) and (d) will be addressed through the DPL.

### **III. PROJECT description**

33. GoI has secured US\$100 million from International Bank for Reconstruction & Development (IBRD) resources to finance the first in a series of two Development Policy Loans (DPLs), and is seeking an additional US\$ 100 million of Clean Technology Fund (CTF) resources for the second DPL in the series. This is consistent with the practice to leverage CTF resources with funds from multilateral agencies in addition to resources that will be put forth by the state. Through this Program, GoHP will promote inclusive green growth and the environmental and social sustainability of hydropower in HP, which is consistent with the objectives of the CTF. This DPL series complements a range of initiatives that the State of Himachal Pradesh has been actively pursuing to support its policy objective of promoting environmentally sustainable growth. The initial support provided to GoHP's programs will be critical in catalyzing the respective programs and have transformative impact on the segment that the respective programs seek to achieve.
34. **As stated above, this Program, will support GoHP's endeavour to promote inclusive green growth and the environmental and social sustainability of hydropower in HP, which is consistent with the objectives of the CTF.** This operation will also promote the public disclosure of the State's comprehensive Action Plan on Climate Change and support the introduction of a novel scheme to the benefit sharing policy that would provide an annuity payment to affected households during the lifetime of hydropower projects, as well as other forms of compensation. To address the environmental challenges of hydropower, there is a commitment to adopt a river basin approach to risk assessment and management, address cumulative impacts and establish transparent and publicly verifiable mechanisms to assure adequate ecological (environmental) river flows. At the end of the series, a policy and institutional framework will be in place to contribute to achieving the objective of reducing greenhouse gas (GHG) emissions intensity; to ensure compliance with environmental flow requirements including measures to address any issues of non-compliance; the completion of cumulative impact assessment for at least one river basin; and the implementation of a benefit sharing mechanism as illustrated by the issuance of cash transfers and commissioning of works mandated by community based program. Together these represent a far reaching policy transformation in the way in which hydropower development takes place in Himachal Pradesh and have potential for broader application and replication.
35. The measures under HP IGG DPL series have been initiated by IBRD funding and the CTF funding would leverage and support GoHP in timely completion and effective implementation of this initiatives. Therefore, the DPL operation as a whole needs to be considered as the changes in totality resulting through this process will all be influencing improvement from sustainability of projects in Himachal Pradesh. Further, while IBRD and CTF

funding would be contributing in equal proportion in implementation of initiatives in Himachal Pradesh, without the latter investment, the initiatives triggered would face hurdles in completion and execution.

### **Aim and Objective of the DPL Series**

36. The overall objective of DPL series i.e. DPL-I and DPL-II is to support HP in a paradigm shift towards an environmentally sustainable model of economic growth by promoting improved management of its natural resources and inclusive green growth. The focus is on providing the key foundations that would define the short term measures necessary to achieve this longer term objective. This is to be achieved by promoting the sustainable use of the State's natural resources – in particular its abundant water supplies, forests and biodiversity. The proposed operations will support specific policy measures within GoHP's overall environmental sustainability reform agenda that have been mutually agreed as critical to achieving a transformation. The Government have identified the triggers for follow-up operations through a process of mutual consultations and with prior comments from MoEF, Government of India.

### **Scope of Activities under DPL**

37. **The objective of this DPL series is to support HP in a paradigm shift towards an environmentally sustainable model of economic growth by promoting improved management of its natural resources and inclusive green growth.** The focus will be on providing the key foundations that would define the short term measures necessary to achieve this longer term objective. This is to be achieved by promoting the sustainable use of the State's natural resources – in particular its abundant water supplies, forests and biodiversity. The proposed operations will support specific policy measures within GoHP's overall environmental sustainability reform agenda that have been mutually agreed as critical to achieving a transformation. The following sections describe the individual actions within the broad framework that forms the legal basis for the disbursement of the proposed HP IGG DPL.

38. **The development objective of the proposed Development Policy Loan to Promote Inclusive Green Growth and Sustainable Development (HP IGG DPL) is to support HP in the improved management of its natural resources across growth engines of the economy and to promote inclusive green growth and sustainable development.** The focus of this program is firmly directed at promoting climate change adaptation and mitigation plan, inclusive green growth as well as environmental sustainability, which will be supported by an ambitious effort towards climate smart development across the key engines of economic growth, namely sustainable energy, integrated watershed management sustainable industry and sustainable tourism.

39. **The CTF co-financing will take forward the measures initiated as a part of the \$100 Mn funded DPL financed by World Bank as discussed below. CTF co-financing is of vital importance. Thus, this programmatic DPL series will help in bringing about policy reforms which will further facilitate institutional capacity building, strengthening and sustaining the existing initiatives/ decisions being undertaken by the GoHP in the energy sector are elaborated below:**

40. The activities undertaken and proposed by GoHP as a part of the DPL are as follows:

- a. An online web based monitoring mechanism for real time effective monitoring of various milestones of implementation of Hydropower projects in Himachal Pradesh, which have been rationalized and timelines for achieving these milestones have been fixed as per actual inputs from the projects under implementation. The provision of penalties is added for defaulters. At the same time the government has been made more accountable by fixing timelines and for accordance of TEC at State level.
- b. Formulation of Domain change policy and policy for enhancement of allotted capacity;

- c. Periodic monitoring of status of project implementation and issuance of notices for defaulting companies on regular basis to avoid delay in implementation of the allotted capacity,
- d. Streamlining the process of obtaining environmental clearances through discussions with various authorities at State and GoI level.

The main milestones are indicated as under:

- Upfront premium.
- Signing of pre Implementation Agreement (PIA)
- Freezing of components and submission of PFR
- Submission of Detailed project Report (DRP)
- Signing of the Implementation agreement (IA)
- Techno-Economic Clearances (TEC)
- Zero date and Start of construction work
- Schedule commercial Operation Date (SCOD) of the project
- Commercial Operation Date (COD) Actual Commercial Operation
- Handing over of the project to the Government free of cost

The monitoring of these milestones shall be effective to the extent that the delay in achieving these milestones shall be checked automatically and would be helpful to take immediate necessary steps to facilitate the developers in achieving the requisite milestones for smooth and effective implementation of the Projects. The financial milestones module is being developed and will be incorporated subsequently

- e. Digitization of Basins Wise Plans, exploration of new potential, identification of balance potential and preparation of IPs. This will help avoid misidentification of project sites in addition to help maintain adequate riparian distance between projects.
- f. Moreover to ensure quality and safety of all ongoing projects in the State, the Government has constituted a committee of empanelled technical experts from different fields, to conduct inspection of project sites.
- g. To ensure development of Transmission facilities, the State Transmission Utility (STU) has been constituted and committee meeting regularly held to sought out all evacuation problems.
- h. The State Government is in process of carrying out various studies in the river basins for the assessment of impacts due to projects implementation like CEIA, Basin carrying capacity assessment.
  - Optimization of potential studies for each basins.
  - Cumulative Environment Impact Assessment (CEIA) Studies.
  - Local Area Development Fund Impact Studies.
  - Basin carrying capacity studies.

**DPL resources will be targeted at initiating several actions proposed above and also to maintain/strengthen the initiatives and structures already in place. As observed, the measures proposed to be initiated involve capacity strengthening of the departments involved and introducing relevant systems and processes that ensure long term sustainability of the initiatives introduced under DPL 1 and as well as DPL 2.**

41. Adoption of a river basin approach to risk assessment and management, address cumulative impacts and establish transparent and publicly verifiable mechanisms to assure adequate ecological (environmental) river flows. The DPL series is intended to facilitate interim review of the ongoing Satluj CEIA (Cumulative Environment Impact Assessment) study leading to the development of concurrent action plan. **The co-financing will help leverage and effectively replicate and implement the measures in – Ravi, Beas and Yamuna river basins, thus enhancing the scale of development.**

## Expected Benefits

42. If successfully implemented, with due care for social and environmental impacts, the planned and sustainable hydropower development program of GoHP could alter the baseline trajectory for emissions from the power sector, because it offers the sole economically feasible clean alternative to both base load and peaking fossil-based power generation plants. If this expansion were to fall short, India would most likely be compelled to further expand its coal-based generation capacity, and also forego a large proportion of proposed RE capacity additions for reasons elaborated upon subsequently in this annex.

43. **DPL will also facilitate the following Local benefits/ State benefits:** The specific benefits to the state and its populace include the following:

- a. GoHP will be able to promote inclusive green growth and environmental and social sustainability of hydropower in Himachal Pradesh.
  - b. Supporting the initiative of developing and distributing Local Area Development Fund, which is a community based benefit sharing program administered by local development authorities, and financed by 1.5 percent of project construction costs paid by project developers.
  - c. Benefit sharing based on direct cash transfers to beneficiaries: support the introduction of a novel scheme to the benefit sharing policy that would provide an annuity payment to affected households during the lifetime of hydropower projects (annual revenues equivalent to 1 percent of power sales from the project are shared during the lifetime of the project), as well as other forms of compensation thereby contributing in alleviating poverty. This will cover the following:
    - i. 85% equally among the resident families Project Affected Area (PAA) on the date of allotment of the Project.
    - ii. 15% to, all the Below Poverty Line families in the PAA. This amount will be in addition to the amount received by these families as stated above subject to the condition that the maximum amount payable to the BPL families does not exceed 1.5 times the amount' payable- to all families.
    - iii. A new proposal for distribution of Post Commissioning LADF is under consideration by the Government wherein it has been proposed that 50% of the total revenue will be distributed to all the families of PAA while the remaining 50% will be distributed on the Land Basis i.e. on the basis of Land Acquired for the implementation of the Project. The list of beneficiary families in the Project Affected Area shall be finalized and published by the concerned Deputy Commissioner. A redressal mechanism to address the grievances arising out on the selection of the beneficiary and of disbursement and management of LADF on this account has been constituted by GoHP.
    - iv. For implementation of LADF Contribution as a Pilot Project Chamera-III (231 MW) has been taken up computation on the above proposed arrangement of distribution of LADF i.e. 50% to all families while balance 50% in proportionate to the Land acquired for the Project on the basis of the details of the families in PAA.
- 2.
- v. The following institutional structure is proposed to manage the LADF, as well as benefit sharing mechanism.

### **Box 3: Institutional Arrangements for utilization of LADF**

- Under the Revised Guidelines, there will be a state level committee headed by the Principal Secretary (Power) to monitor the operation of the LADF arrangements by the LADC, adherence to the Guidelines and timelines for deposit of the funds.
- The Directorate of Energy will be the nodal agency at State Level which will keep record of LADF activities, and manage the allocation of revenue generation from 1 percent additional free power to the concerned LADC.
- Further, under the revised arrangements, there shall be project level LADC for each project and these would be headed by the Deputy Commissioner, and consist of district level officers of concerned departments, elected members (Pradhans or other local administrative officials) of affected Panchayats, Chairman & Vice-Chairman of Zilla Parishad and Panchayat Samitis.]
- The schemes under LADF can be implemented by either Gram Panchayat, or Government department or project developer and the decision of the choice is left to the Gram Panchayat.

- d. A policy and institutional framework will be in place to contribute to achieving the objective of reducing GHG emissions intensity.
- e. Risk assessment and management at river basin level rather than by individual projects, and risk-based assessment of environmental flow requirements.
- f. Local economy benefits – Hydropower development provides additional non-tax revenue for the state and therefore remains fiscally attractive. Calculations suggest that should GoHP be successful in achieving its objective of developing hydropower resources, the revenues from the sale of royalty power together with dividends, could be more than 35 percent of HP’s current revenues and could be more than 87 percent of the states non-tax revenues by FY2015-16.
- g. Build investor confidence in the projects and in the state agencies by opening avenues for financial institutions to develop their credit portfolio in the hydropower sector.

**With this Program, HP will be the foremost state in making a tangible contribution to the GoI objective on GHG emissions intensity.**

## **IV. CTF Investment Plan for India**

The Government of India proposes to access the Clean Technology Fund (CTF) to help remove barriers and scale up the deployment of renewable energy and energy efficiency and support the country’s voluntary objective to lower carbon intensity by 20 to 25 percent by 2020 against a 2005 baseline.

Since the CTF can address only certain select barriers based on its mandate and given that the goals of “transformative” and “leverage impacts” nature of interventions that the CTF is mandated to cater to, the selected interventions that are being proposed for CTF co-financing in Phase 1 are:

- i. **Renewable Energy Development in the State of Himachal Pradesh** - The objective of this priority activity is to provide a Development Policy Loan to the State of Himachal Pradesh, which will be focused on policies

to establish a framework for local benefit sharing, and sound watershed management, that will promote the social acceptability and environmental sustainability of renewable energy, including hydropower development, and result in increased deployment of renewable energy with shorter lead time.

- ii. **Implementation support to activities under the NMEEE** - The objective of this support is to provide concessional finance for implementation support of NMEEE. The NMEE proposed innovative and market approach-based programs that covers demand side and supply side energy efficiency measures. IBRD and Climate Investment Funds (CIFs) would provide resources for incentive mechanisms that encourage market making efforts. This intervention would support two key schemes of NMEEE (a) Perform, Achieve and Trade; and (b) Super- Efficient Appliance Deployment (SEAD).
- iii. **Partial Risk Guarantee Scheme** - Partial Risk Guarantee scheme for new technologies in renewable energy and energy efficiency - The objective of this priority activity is to help extend the reach of private financing by mitigating perceived risk and encourage private sector involvement in these sectors; this facility will act as a risk-sharing mechanism that will provide commercial banks with partial coverage of their risk exposure, thereby helping investors get lower cost debt. The fund would be available in case of default only, i.e., it will be paid out to participating banks in the event of a loss or default, as specified in the structure of the PRG mechanism.
- iv. **Implementation support to activities under the JNNSM** – The objective of this support is to provide financing support to new and innovative technologies which have not been financed under Phase I; help lower the cost of financing and facilitating technology transfer in the establishment of solar parks and contribute to a concessional financing pool for projects under 300 MW of phases I and II of the Mission, to help overcome high up-front capital and lack of access to long term credit at attractive rates. Concessional finance will be critical to bring down the initial costs in adoption of CSP technologies while the ecosystem to the support solar power is being developed. Also the private sector developers under the first phase are mostly opting for the most developed and proven technology of parabolic trough. The Ministry wants to examine avenues for supporting pilot projects using CSP technologies other than trough technologies, which are not fully commercial yet have high replicable potential for India. They are also unlikely to receive private sector financing in the normal course, since these are high technology risk projects, and would need concessional financing. Multilateral development assistance is being extended to the GOI in developing several solar parks comprising multiple utility scale solar generating plants, transmission systems, and associated infrastructures being developed taking a PPP approach.

The co-financing plan for the different priority activities have been summarized in the table below.

**Table 3: Financing Plan**

Priority Activities	CTF Financing (Mn USD)
DPL for Himachal Pradesh	100
NMEEE	100
Partial Risk Guarantee Scheme	25
JNNSM	550

**Source:** <https://www.climateinvestmentfunds.org/cifnet/sites/default/files/India%20Presentation%20to%20CTF%20Committee.pdf>

## V. Assessment of the Proposed Project with CTF Investment Criteria

### a. Potential for GHG Emissions Savings

44. Harnessing of the state's large run-of-river hydropower potential represents perhaps the only opportunity for HP to promote clean energy at scale, and, in the Government's estimation, is a critical way to contribute to India's growing energy demand, in particular for peak energy demand. Thus there is little doubt hydropower development would have to proceed irrespective of the external involvement as this is very much a part of GoHP's own development and fiscal agenda, but this DPL series (both IRBD and CTF funded) seeks to ensure that the hydropower development program of GoHP is done in an environmentally and socially sound manner. The DPL would also help in fast-tracking the existing hydropower development in HP through host of new institutional measures and further strengthening the existing set up.
45. The state government has already allocated hydropower projects of ~22 GW to various state and private sector players. Of this ~8.3 GW is commissioned as on 30<sup>th</sup> September 2013. The allotted projects are under various stages of development (under construction, investigation and obtaining clearances), however taking into account the current scenario, these projects have high probability to get delayed. The activities planned under the DPL would work out as a catalyst for improving the quality of hydropower development and developing these projects at an accelerated pace. There are two scenarios that have been developed to assess the GHG emission savings through DPL.
46. The detailed methodology for computation of CO<sub>2</sub> emission reduction is shown in Annexure – C for both BAU and DPL Scenario as defined below:
  - a. **BAU scenario** can be defined as a baseline case, which assumes that future hydropower development would be similar to the past and existing trends shall continue. Further it assumes that the incremental demand in the region would be met mainly through thermal and hydro power.
  - b. **Scenario B**, can be defined as a case wherein hydropower development program of GoHP accelerates through introduction of policy and institutional measures (through CTF funding) that help in improving quality of hydropower development particularly around environment and social sustainability. Under this scenario, the development of future hydropower capacity in the region will be advanced resulting timely commissioning of hydropower projects. This in the long run will also attract new investments. **Under this Scenario ~76% of the total allotted capacity (excludes foregone and unallotted projects) is likely to get commissioned by 2032.** This is the most conservative scenario and has higher probability to occur.
  - c. **Scenario C**, can be defined as a case wherein hydropower development program of GoHP accelerates through introduction of policy and institutional measures (through CTF funding) that help in improving quality of hydropower development particularly around environment and social sustainability. Under this scenario, the development of future hydropower capacity in the region will be advanced resulting timely commissioning of hydropower projects. This in the long run will also attract new investments. **Under this Scenario ~90% of the total allotted capacity (excludes foregone and unallotted projects) is likely to get commissioned by 2032.**
  - d. **Scenario D**, can be defined as a case wherein hydropower development program of GoHP accelerates through introduction of policy and institutional measures (through CTF funding) that help in improving quality of hydropower development particularly around environment and social sustainability. Under this scenario, the development of future hydropower capacity in the region will be advanced resulting timely commissioning of hydropower projects. This in the long run will also attract new investments. **Under this**

**Scenario ~97% of the total allotted capacity (excludes foregone and unallotted projects) is likely to get commissioned by 2032.**

**Table 4: Assessment of GHG Emission under DPL**

	Year	BAU Scenario	Remarks on BAU Scenario	Scenario with CTF funding	Remarks on CTF Funding Scenario
1A	Already Commissioned (as on 30 <sup>th</sup> Sept 2013)	8315 MW	Hydro power capacity commissioned in Himachal Pradesh	8315 MW	Hydro power capacity commissioned in Himachal Pradesh.
1B	Projects under construction (Up to 2032)	3870 MW	Projects under construction get commissioned as per current targets	3870 MW	Projects under construction get commissioned as per current targets (at an accelerated pace)
<b>B (Scenario B)</b>	Projects allotted under clearances and under investigation (Up to 2032)	2903 MW	Due to delays and inadequacies pace of capacity addition starts getting affected resulting spiralling effect.	4238 MW	Higher number of projects commissioned due to various measures introduced through CTF financing (at accelerated pace)
<b>C (Scenario C)</b>	Projects allotted under clearances and under investigation (Up to 2032)	2903 MW	Due to delays and inadequacies pace of capacity addition starts getting affected resulting spiralling effect.	7199 MW	Most projects commissioned due to various measures introduced through CTF financing (at accelerated pace)
<b>D (Scenario D)</b>	Upto 2032 (Projects allotted under clearances and under investigation)	2903 MW	Due to delays and inadequacies pace of capacity addition starts getting affected resulting spiralling effect.	8664 MW	All allotted projects commissioned due to various measures introduced through CTF financing (at accelerated pace)
<b>Scenario B Total (1A+1B+B)</b>		<b>15,088 MW</b>	<b>(1A+1B+B)</b>	<b>16,423 MW</b>	
<b>Scenario C Total (1A+1B+C)</b>		<b>15,088 MW</b>	<b>(1A+1B+C)</b>	<b>19,384 MW</b>	
<b>Scenario D Total (1A+1B+D)</b>		<b>15,088 MW</b>	<b>(1A+1B+D)</b>	<b>20,849 MW</b>	
<b>% of Carbon Saving vis-à-vis BAU under Scenario B</b>				<b>31.7%</b>	
<b>% of Carbon Saving vis-à-vis BAU under Scenario C</b>				<b>73.9%</b>	
<b>% of Carbon Saving vis-à-vis BAU under Scenario D</b>				<b>93.2%</b>	

In the BAU case for both the scenarios, only projects with a total capacity of ~6.8 GW would get commissioned vis-a-vis the planned capacity addition of ~12.5 GW due to delays and inadequacies, pace of capacity addition starts getting affected resulting spiralling effect. Further, as the activities of DPL starts getting executed, the situation would improve and this would lead to development of hydro projects at an accelerated pace.

As highlighted in the above table,

- **Under Scenario B**, it is estimated that ~6.8 GW (includes projects under construction, clearances and investigation) will be commissioned under BAU upto 2032 vis-à-vis ~8.2 GW (projects at accelerated pace) under CTF/DPL scenario.
- **Under Scenario C**, it is anticipated that ~6.8 GW (includes projects under construction, clearances and investigation) will be commissioned under BAU upto 2032 vis-à-vis ~11.0 GW (projects at accelerated pace) under CTF/DPL scenario. This should not be perceived as any additional capacity but only bringing forward the installed allotted capacity that is at various stages of development (under construction, clearances and investigation).
- Under a more optimistic situation, **Scenario D**, ~12.5 GW (includes projects under construction, clearances and investigation at accelerated pace) would be commissioned by 2032 bringing the total installed capacity to ~20.8GW. This will also lead to much higher carbon savings.

47. For the purpose of computing the CO<sub>2</sub> emission savings, the hydropower capacity commissioned at accelerated pace under each of the scenario is being considered. The additional carbon emission savings during each year has been further detailed out for each of the above scenarios in Annex-C.

*Accelerated Hydro Power Capacity (during each year) = (Annual Hydro Power Capacity Addition after DPL) – (Annual Hydro Power Capacity Addition in the Business as Usual Case (without CTF))*

48. Reforms planned under the DPL would result in advancement of **the hydro power capacity (already planned under GoHP program) likely to be commissioned during each year**. While initial set of measure under the DPL were introduced through the IBRD funding, the introduction of remaining measure and sustaining them over longer term would require additional funds targeted under the CTF. Thus, the CTF investment would serve as a catalyst to such development and would target investment to strengthen institutional mechanism and institute measure for fast paced development. Being a policy lending instrument, CTF fund is likely to have strong leverage value much beyond the individual project and state level, to national and regional level.

49. For the purpose of this study, the grid emission factor as per CEA’s Report on “Baseline Carbon Dioxide Emissions from Power Sector – Version 8” released in January 2013 has been considered to be 0.78 tCO<sub>2</sub>/MWh for the lifetime of the project. The grid emission factor has been kept constant for the lifetime as this depends on the GCV of coal used in various thermal power stations. The GCV/quality of coal used in India has been varying due to increased use of blended coal (mix of domestic and imported coal) and uncertainty in the availability of domestic coal. This trend makes it difficult to predict any specific blending mix over a period of 20 years. Hence, for the sake of convenience a static figure has been used.

**In the BAU Scenario B** as shown in table 4, the GHG emissions savings are likely to be ~227 Mn CO<sub>2</sub> eq. While as a consequence of DPL, the hydro projects would get commissioned at accelerated pace and as articulated above about 76% of the allotted hydro projects would get commissioned by upto 2032. The GHG emission savings post DPL is likely to be ~ 299 Mn CO<sub>2</sub> eq., increasing by ~31% vis-a-vis BAU case.

**In the BAU Scenario C** as shown in table 4, the GHG emissions savings are likely to be ~232 Mn CO<sub>2</sub> eq. While as a consequence of DPL, the hydro projects would get commissioned at accelerated pace and as articulated above about 90% of the allotted hydro projects would get commissioned by upto 2032. The GHG emission savings post DPL is likely to be ~403 Mn CO<sub>2</sub> eq., increasing by ~74% vis-a-vis BAU case.

**In the BAU Scenario D** as shown in table 4, the DPL would result into installation of 97% of the allotted capacity. The remaining capacity allotted is for the projects below 5 MW which may get commissioned post 2032. The GHG emission savings post DPL is likely to be ~447 Mn CO<sub>2</sub> eq., increasing by ~93% vis-a-vis BAU case. The table shows the projected trend of the GHG emission savings till 2032 along with the avoided coal based capacity.

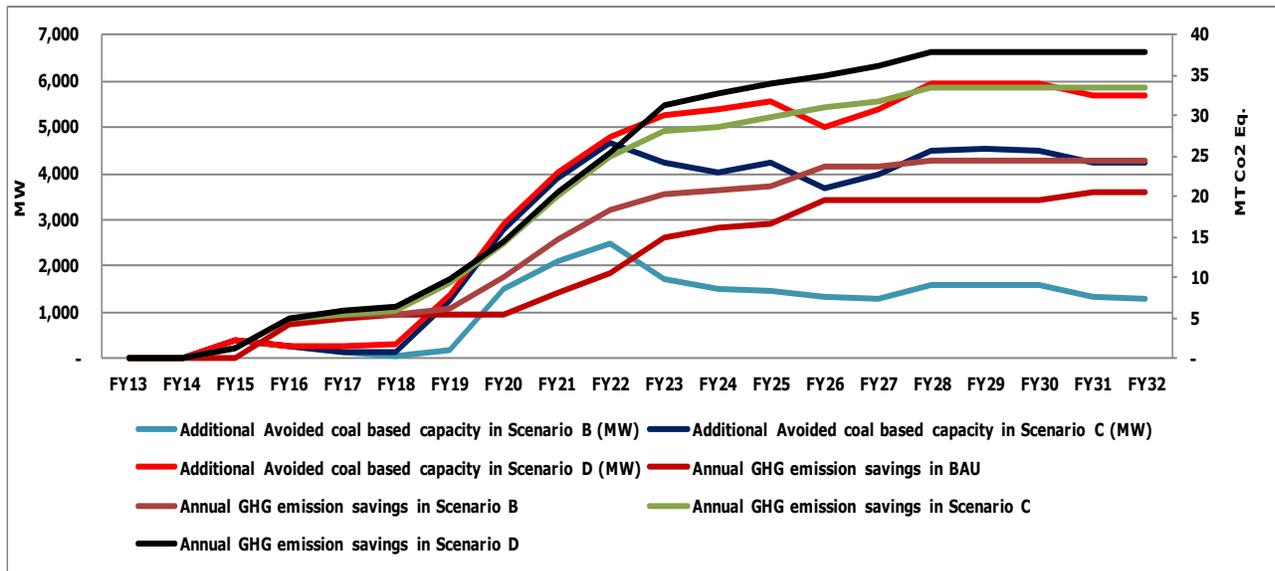
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**Table 5: CO<sub>2</sub> emissions in BAU Scenario and with DPL**

Parameters	Scenario B	Scenario C	Scenario D
Cumulative GHG emission savings in BAU (Mn Tons of CO <sub>2</sub> equivalent) upto 2032 (A)	227	232	232
Cumulative GHG emission savings with CTF co-funding (Mn Tons of CO <sub>2</sub> equivalent) upto 2032 (B)	299	403	447
Additional GHG emission savings with CTF co-funding upto 2032 (Mn Tons of CO <sub>2</sub> equivalent) (A-B)	72	171	216
% Increase in GHG Emission Savings	31.7%	73.9%	93.2%
Avoided Coal Based Capacity (MW) upto 2032	1313	4230	5672

Source: AF-Mercados EMI Analysis

**Figure 4: Comparison of CO<sub>2</sub> emission levels in the BAU scenario and in the DPL scenario**



Source: AF-Mercados EMI Analysis

50. The above table and the graph show the comparison between the CO<sub>2</sub> emission in Business as Usual (BAU) scenario and DPL scenario. From the above graph it can be inferred that with DPL the emission levels would decrease in comparison to the BAU scenario. **This would result in avoidance of cumulative thermal capacity of ~1313 MW by 2032 under the most conservative scenario (Scenario B). Further, thermal capacity of ~4230 MW in Scenario C and ~ 5672 MW in Scenario D would be avoided by 2032** as shown. (refer table 5). Run-of River hydropower plants do not cause net emissions of GHG except the comparatively small amounts of such gases released as a result of manufacturing of equipment and construction work, including transportation. As per the study<sup>29</sup> conducted by the World Bank, the rough estimate indicate that without forest clearance the specific emission of CO<sub>2</sub> would be in the order of 1g/kWh.

<sup>29</sup> Review of Greenhouse Gas Emissions from the Creation of Hydropower Reservoirs in India, Background Paper on “India: Strategies for Low Carbon Growth” dated July 2008.

## Technology Development Status

51. Hydropower technology is mature both nationally and internationally. The main impact that the DPL will have is to help in improving quality of hydropower development particularly around environment and social sustainability and in reducing the delays in commissioning of the hydropower projects rather than having a direct impact on technology.

### b. Cost-Effectiveness

52. **The CTF investment per ton of CO<sub>2</sub> reduction would be ~1.39 in Scenario B, ~\$0.583 in Scenario C and ~0.463 in Scenario D at the regional level and ~\$0.662 at the national level by 2032.** The above numbers have been computed from the resulting additional emission reduction of ~72 Mn Tones of CO<sub>2</sub> in Scenario B, ~171 Mn Tones of CO<sub>2</sub> in Scenario C and ~216 Mn Tones of CO<sub>2</sub> in Scenario D at regional and ~250 Mn Tones at national level respectively by 2032. Hence, it can be inferred that the CTF investment in implementation of the DPL would result into a significant support for the State's Action Plan on Climate Change.

53. Hydropower technology is a mature technology and hence there is limited scope for scale effect of technology deployment contributing to a reduction in the cost of hydropower. However, the outcome of the DPL series will be in the form of faster implementation of hydro power projects (through minimizing the delays under BAU), thereby resulting in reduced cost of generation, and environmentally benign electricity production. The reduced cost of power and reliability would support the country's objective of faster growth in a sustained manner.

Instituting the above initiatives and policies will also have tremendous replicability value for the projects in the state and for other hydro rich states.

### c. Demonstration Potential at Scale

54. India's power sector emissions are expected to reach ~1367 Mn Tones of CO<sub>2</sub> eq by 2032 due to increasing coal based power generation. The changing hydro thermal mix and the increasing share of thermal energy in India's generation basket is likely to continue in the short and medium term. In this particular scenario Variable Renewable Energy (VRE) such as Solar and Wind power and Hydro power would play an important role in reducing CO<sub>2</sub> emissions. Implementation of the DPL project will give immense benefits in terms of avoided CO<sub>2</sub> emissions by 2032. The table below shows the trend of additional CO<sub>2</sub> Emissions as percentage of BAU emissions savings.

**Table 6: Future trend of additional CO<sub>2</sub> Emissions as % of BAU emissions savings**

Parameters	FY17	FY21	FY25	FY29	FY32
Cumulative Reduction of GHG Emission in BAU Scenario (Mn Tons)	9.2	33.9	92.4	170.9	231.6
Cumulative Reduction of GHG Emission in Scenario B(Mn Tons)	11.8	48.1	128.8	225.2	298.9
% Increase in GHG Emission Savings in Scenario B	27%	42%	39%	32%	29%
Cumulative Reduction of GHG Emission in Scenario C(Mn Tons)	11.8	61.3	172.6	302.3	402.9
% Increase in GHG Emission Savings in Scenario C	27%	81%	87%	77%	74%
Cumulative Reduction of GHG Emission in Scenario D (Mn Tons)	12.2	63.4	186.5	333.6	447.5
% Increase in GHG Emission Savings in Scenario D	32%	87%	102%	95%	93%

Source: AF-Mercados EMI Analysis

55. The aim of this DPL is to promote the environmental and social sustainability of hydropower. The development in hydropower that get facilitated through the DPL support would encourage other hydro rich states to replicate and learn from the policy reforms. The DPL would facilitate in harnessing of the potential of hydropower in Himachal Pradesh on various rivers through CEIA studies in a sustainable manner. This development will percolate to other hydro rich states that benefit from these river basins thereby leading to a reduction in the dependence on thermal power.
56. Success of hydropower development in HP through improvement in quality of development particularly around environment and social sustainability would bring added benefits and will serve as a template not only for mid-Himalayan states in India, but for other countries in the South Asia region (such as Bhutan and Nepal), since most of the developers in the state are active regionally in these countries and would utilize their experience and expertise globally.
57. The post project replication pathway would be:
- Replicating the development of hydropower in Himachal Pradesh to other hydro rich states through policy and institutional reforms.
  - Displace the development of thermal power capacity.
  - Use hydropower as a balancing reserve for variable renewable energy and meeting peak energy demands both at the regional and the national level.
  - Promote basin-wide risk assessment and management through Cumulative Environment Impact Assessments to overcome geological and other risks.
  - Leverage existing studies in other hydro rich states at the national and the regional level.
  - Leverage the competencies and build institutional capacity.
58. Success factors that are necessary for project results to contribute to transformation:
- Commissioning of the hydropower projects as close as possible to schedules by minimizing the delays.
  - Improved environment and social sustainability practices.

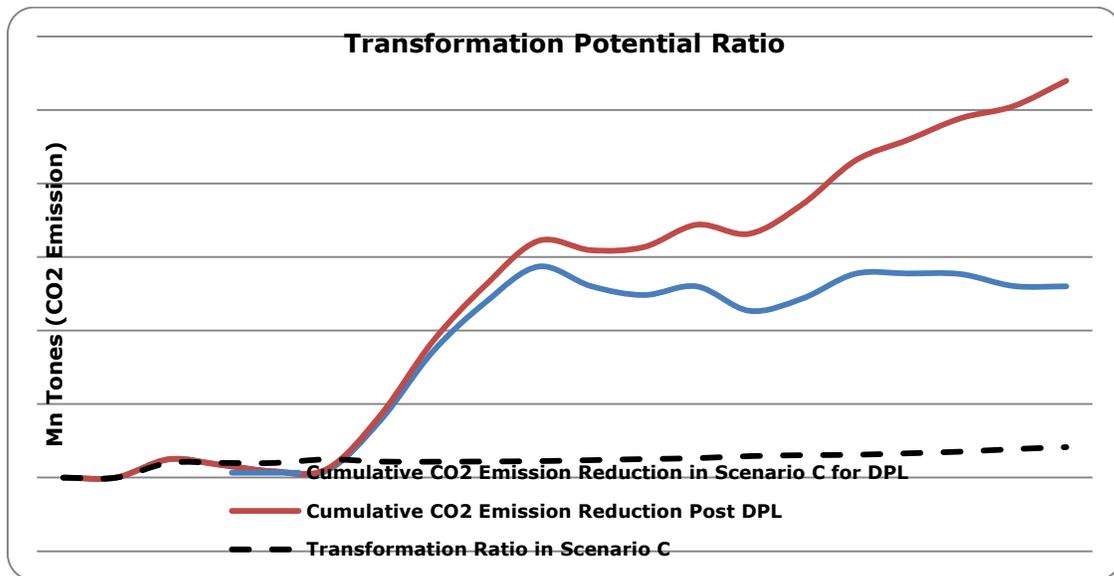
### Transformation potential

59. The DPL project would alone contribute to development in the state of Himachal Pradesh. The results arising due reforms planned under DPL in HP can be evaluated after some years as the gestation period of hydropower projects is reasonably high. Hence, the replication of such reforms in the country could be taken up only after the initial results of this DPL. The replication potential of this project would be high and would accelerate the hydropower development in other resource rich states thus encouraging newer investments. The trajectory of emissions from DPL alone in HP over the lifetime of 20 years would result into an additional CO<sub>2</sub> emissions reduction of ~72 Mn Tones under Scenario B. The replication of similar DPL in other states in the country would result into higher magnitude of CO<sub>2</sub> emission reduction. For computing the impacts of replication, the capacity in the pre-construction and under construction phase have been considered in various hydro rich states of the country as discussed above. The ratio between trajectory of reduced emissions that would result directly from the DPL alone and trajectory of reduced emissions that would result if the reforms supported under DPL project were to be replicated throughout the targeted area, region or sector have been summarized below.

**Table 7: Transformation Potential Ratio**

Parameters	FY 17	FY 21	FY 25	FY 29	FY 32
CO <sub>2</sub> Emission reduction through DPL (Mn Tons) under Scenario B	0.42	6.45	4.55	4.89	4.04
CO <sub>2</sub> Emission reduction through replication of DPL (Mn Tons)	0.42	7.62	8.74	13.97	18.02
Transformational Ratio	1.00	1.18	1.92	2.86	4.46

Figure 5: Transformation Potential Ratio



Source: AF-Mercados EMI Analysis

60. As observed from the table above the transformation potential ratio is going to be high with the DPL project. The ratio between the reduced emissions of the replication of the DPL project and the DPL project alone is likely to increase throughout the life of the project. The post DPL would result into an accelerated capacity of harnessing of this potential would result into an additional capacity of around ~5880 MW (Includes projects across the Himalayan States) of hydro power at national level.
61. Moreover, since the DPL is a policy lending instrument it will have much higher leverage than conventional investments. Therefore, in order to consider the leverage of CTF investment, the additional hydropower capacity commissioned due to pre-ponement of the projects in pipeline overtime has been considered for the purpose of computation of incremental CO<sub>2</sub> emission savings.

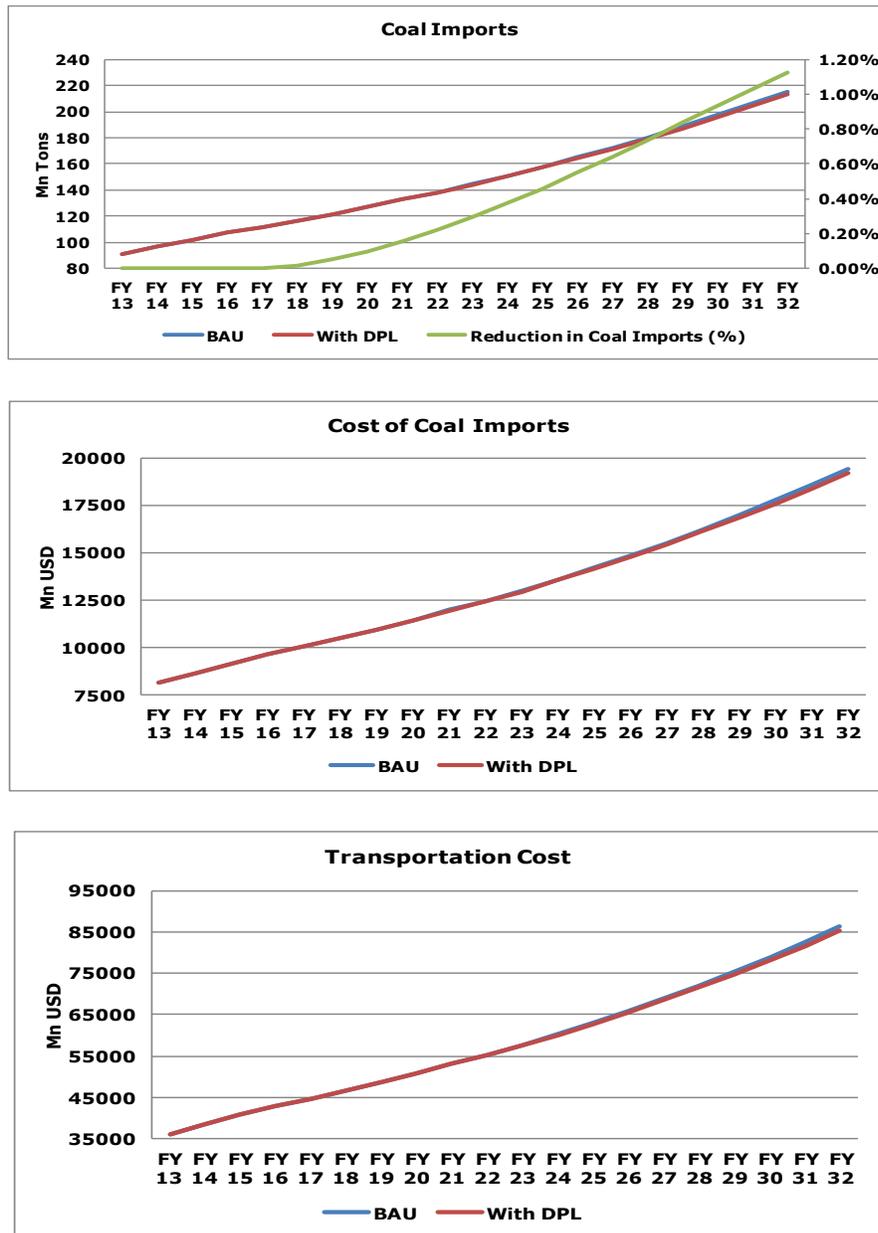
#### d. Development Impact

62. The policy-level budget support to GoHP through the DPL will facilitate hydropower development at an accelerated pace minimizing the issues currently faced by various stakeholders. Since this intervention will affect the supply-side of the energy balance of the country, it will not have a direct impact on the reduction of energy intensity of GDP. However, this intervention will have a significant impact on the reduction in the carbon intensity of GDP because of the expected reductions in GHG emissions. The DPL will help GoHP avoid reliance on alternate (polluting) sources of revenue from industry, which will help promote a sustainable ecology and social development in the mountain state.
63. **DPL would help in reducing coal imports for meeting the country's increasing demand for electricity:** Though the Government is taking measures to reduce supply risk and Indian companies are expanding the number of countries they source fuel supplies from, it is necessary to focus on diversification of the energy sources and also development of hydropower which unlike thermal helps meet the peak demand. Power sector in India is already importing coal. **A further surge in fuel imports is likely to strain public and private finances and foreign**

**exchange reserves and widen fiscal and trade deficits.** The contribution from hydropower and renewable energy generation is the only option available for the country in order to reduce the cost of generation and build reliability to mitigate the peak deficits of the nation.

The coal imports have started to hamper the current account deficits of the country which stand at a level of 5.2% of the GDP as per recent update. Therefore, there is need to reduce the imports of fossil fuel and develop alternative sources of energy. The following graphs illustrate the likely impact that the HP DPL can make at the national level. The country is likely to have a coal based capacity of ~285GW by 2032 increasing the cost of power. The cost increase is likely to be due to the price of imported coal and the transportation cost of fuel from pithead and ports to the demand centres.

**Figure 6: Benefits of reduction in consumption of coal**



*Source: AF Mercados EMI Analysis*

64. Post implementation of the CTF co-financed project, it is likely that the share of hydropower will increase in the overall generation mix of the country. If built on time, power generated from hydro plants is relatively cheaper than power generated from thermal power plants. Increasing prices of domestic coal and the use of imported coal to overcome the fuel availability constraints in the country will automatically lead to an increase in the price of the power thus generated. Since thermal power plants are used to serve base load demand only, hydropower on the contrary has the ability to serve not only the base load demand but also peak demand additionally it can also act as a spinning/balancing reserve. Harnessing the potential would help relieve the coal dominated and VRE intensive power system. A reasonable mix of hydro and gas in the system would help in maintaining the grid frequency and in turn ensure power reliability and grid stability.
65. The average cost of power generated by coal fired power stations to serve the base load is around 7 cents/kWh and the peak load is around 13 cents/kWh. The development of hydro power and reducing cost of renewable generation would result in reduction of cost of serving the base load by 1 cent/kWh and 4 cent/kWh during the peak load. As also mentioned earlier, **hydro power would also play a vital role in form of flexible and fast response reserves to maintain the system stability in a power system featuring high proportion variable renewable sources. It would serve as balancing power to absorb the variable nature of wind and solar energy, thereby accelerating the growth of renewable energy across the country. Power reliability is intended to improve significantly with this development.**
66. In addition, the innovative benefit sharing policy is expected to have a direct impact on poverty alleviation for host communities. The Poverty and Social Impact Analysis prepared by the Bank for the DPL series will monitor ex-post the success of these policies.

#### **Environmental and Social co-benefits**

67. The environmental and social co-benefits resulting from the HP DPL have been summarized below.
  - Significant reduction in CO<sub>2</sub> emissions;
  - Promote environmental and social sustainability;
  - Promote climate resilience
  - Implementation of benefit sharing policy as illustrated by issuance of cash transfers in one hydropower project and commissioning of works mandated by community based program;
  - Compliance with environmental flow requirements and completion of cumulative environmental impact assessment for one river basin, and support of such assessments in other river basins which will facilitate future capacity;
  - Creation of the Department of Environment, Science and Technology (DEST) promoted under the first fiscal DPL (2007), with additional earmarked resources.
  - Increase in total Employment generation in the state at the local/village level
  - Enhanced irrigation facility in the state in hectares/acres and the facility available to the local villagers
  - Institutional arrangements and policy developed for benefit sharing and number of people benefitted
  - Enhanced income sources for the local/villagers
  - Environmental benefits to the local villagers in relation to air pollution, water pollution and soil contamination
  - Enhanced infrastructure support in providing safe drinking water, basic health facility, transport network and elementary education
68. Hydropower projects consider community development initiatives concerning issues of health, poverty, economic development and gender. Hydropower projects can impose social and economic costs on local populations early in

the planning and construction process. These can include loss of land, other assets (such as houses, wells, etc.) and livelihoods due to land acquisition, physical relocation of communities, stress on ecosystems, possible migration of workers and exposure of crops (and people) to construction waste. On the other hand, the benefits from better or cheaper access to hydropower are spread over the long-term and subject to uncertainties stemming from the physical challenges in power distribution in mountainous regions or simultaneous growth in the supply of and the industrial demand for energy.

69. Hydropower projects help in the creation of jobs and a corresponding increase in income of the families. This helps in alleviating poverty and thus raising the standard of the families. Amongst others, the power policy of the state attempts to address aspects like access and availability, affordability and assured employment to people of Himachal. The employment opportunities so created would provide women with equal opportunities to earn and access to modern energy services thereby reducing their time and effort. Further, the free power available to GoHP will aid on providing continuous, reliable electricity to the citizens of the state with maximum benefits accruing women and children.

#### e. Implementation Potential

70. The implementation of the measured proposed above strongly depend on the existing state policy and the institutional wherewithal to implement the policy provisions. The current policy and institutional structure in Himachal Pradesh provide a conducive environment for hydropower development.
71. The pace of hydropower development in Himachal Pradesh has been relatively better than any other state in the region/country. This has been due to the conducive central and state level policy support and implementation. Initiatives undertaken by the Government of Himachal Pradesh include formation of DEST, introducing penalty framework for hydropower project developers, attempt to balance the risk profile of the project to attract private sector investment, etc. In order to provide further impetus to hydro power development in the state and to address the issues faced by the states, several amendments have been made ever since it was issued in 2006. Implementation of policy happens in the context of policy and institutional framework that has already been created and such policies exist both at the national and the state level.
72. GoHP's **Hydropower Policy 2006** lays down the regulating framework and provides guidelines to hydropower project developers with regard to bidding for hydropower projects, incentive and penalty framework, etc. With changing scenarios these policies have been amended from time to time to ensure that they are in line with the requirements of the changing environment.
73. Hydropower development in India received impetus with the introduction of the **Hydropower Policy 1998** at the central level. Basin wise development of hydro potential was envisaged and significant emphasis was accorded to private sector participation. **Further in 2002, CEA carried out preliminary ranking studies** of about 400 schemes in the six river basins of the country. Subsequent to this, in 2003, the Prime Minister's **50,000 MW Hydro Power Initiative was launched in which** PFRs (pre-feasibility reports) of 162 new projects having an aggregate capacity of 47,930 MW were prepared which were spread across 16 states. The Electricity Act that was notified in 2003 which provided a framework for development of new capacity on a competitive basis and placed statutory responsibility on regulators for market development. The Electricity Act 2003 has opened up significant investment opportunities in the generation sector by de-licensing electricity generation. This has enabled setting up power plants at optimum locations and transmitting power to the power deficit states using open access in transmission. In other words, the Act mandates competition and choice, which were non-existent in the pre-Electricity Act 2003 era. Subsequently, the **National Electricity Policy** was notified in **2005** and it encourages hydropower development through private participation and stresses on the need for successful models for Public Private Partnership. In 2006, the **National Tariff Policy was notified; the Integrated Energy Policy** was announced in the same year, followed by the **National Policy on Resettlement and Rehabilitation in 2007. The National Hydro Power Policy** was notified in **2008** which brings the state level policies in close coordination with

central policy and facilitates new project development through price regulated contracts. In 2009, the **National Water Mission was announced under the National Action Plan on Climate Change and the Mega Power Project Policy was announced which further encouraged hydropower development in the country.**

74. The policies at the central and the state level provide an enabling framework for accelerated development of hydropower. Policy reforms supported towards adopting environmentally and socially sustainable hydropower development through the DPL would help creating an enabling environment for effective implementation of the policies, and lead to a balance in the risk profile between the project developer and the host entity. This would attract investment/sources of finance from different multilateral and bilateral sources. The HP DPL support will lead to a) cost reduction, b) creation of enabling social infrastructure and c) construction being de-risked and accelerated. With these developments, equity co-financing becomes available. Hence, HP DPL will provide confidence to equity investors and hydropower projects will get access to both debt and equity financing.
75. In addition to the above policies GoHP has undertaken consultations with stakeholders to align this operation of hydropower development with State plans and priorities, in an effort to promote inclusion in policy making. Careful consideration has been given to political economy factors in the design of the policy reforms and sequencing of DPL. Moreover, there is multi-party support among the major parties and a growing consensus that a paradigm shift towards a sustainable economic growth model would be universally beneficial for the State and would enhance the economic self-interest of its population. For reference Letter from Chief Secretary Himachal Pradesh has been attached in Annexure B.

#### **Expected Co-Financing**

76. Hydropower projects in Himachal Pradesh are owned by the Central, State and the Private sector. Multiple sources of funding are available to these sectors and the ratio of debt to equity varies on project to project basis which is usually 70:30 but in several projects this ratio has even been 50:50; 65:35; 75:25; etc. Sources of Debt funding typically include Banks, Non Banking Financial Companies (NBFC), Multilateral/Bilateral agencies including IFI's and private sector lenders or combination of these sources while Equity is generally available from Central/State Government; public utilities, capital markets, domestic and international private investors, etc.

**The DPL does not directly finance the projects but would improve the availability of financing for hydropower projects. Further, in the current case, the CTF leverage ratio has been calculated based on the additional capacity commissioned of hydro power projects.**

77. The DPL would be supported by co-financing from IBRD for a 100 Mn USD along a CTF funding of 100 Mn USD. With this DPL supported through CTF, in Scenario B the state is likely to accelerate development of ~1334 MW bringing in an investment of ~1958 Mn USD further broken down into ~587 Mn USD in form of equity financing and ~1371 Mn USD through debt financing. Much of this investment will come from private sector equity investors and commercial banking channels. The CTF investment leverage ratio would be **1:19.58** through implementation of DPL in the targeted area alone and **1:86.31** through its replication at regional and national level for every \$1 invested through CTF. Hence, the HP DPL will crowd-in/ attract adequate quantity of finance and at reasonable costs. This will lead to creation of a virtuous cycle. One could potentially also calculate the Co-financing that has been leveraged using the following formula: 1334MW worth of power will be brought forward by DPL (versus BAU) in the best case scenario. At Rs. 8 cr per MW, this amounts to \$1958 million. The NPV of co-financing from accelerated development comes to \$291 million. (Discount rate of 10% is used for 20 year time period).
78. The project development accelerated by the DPL would result into financing support from various sources as tabulated below:

**Table 8: Proposed Financing Sources for Hydropower Projects in Himachal Pradesh**

Sr. No.	Sector	Proposed allocation	Remarks
1	State	23%	For execution of these projects, Funds arranged/being arranged from PFC, REC, multilateral funding from ADB and bilateral funding from KFW German Development Bank. Equity share for these projects is being provided by Govt. of Himachal Pradesh to HPSEB Ltd., HPPTC Ltd. and HPPC Ltd.
2	Central & Joint	24%	From their own resources and loan from different agencies
3	Private above 5 MW	46%	From their own resources and loan from different agencies
4	Private upto 5 MW	7%	From their own resources and loan from different agencies

**f. Additional Costs/Risk Premium**

79. Delays during implementation of hydropower projects on account of clearances, land acquisition, etc affect the project developer especially the private ones. GoHP has set incentives and a penalty framework on achieving/not achieving the development milestones of the project. Delays lead to accumulation of monetary losses on the developers making the returns/project unattractive. The multiple risks associated with hydropower projects affect the developer the most since the risk sharing mechanism between the Government and the project developer is unbalanced. This makes hydropower projects unattractive for investment in the face of large and varied risks.
80. The tariff impact of the delays can be severe (if cost variations due to development delays and additional cost incidence) if allowed to be passed through. If the costs are to be absorbed by the developer, the delays lead to non-viability of the project, lack of finance (or additional costs as risk premium), and in certain cases can lead to abandonment of the project by the developer. The DPL would help in bringing about policy reforms that will reduce the risks and the subsequent delays in the commissioning of the projects.
81. Despite allotting large number of hydropower projects for execution, the pace of their development in Himachal Pradesh has remained sluggish, slipping from agreed schedule due to the key fundamental issues arising at various stages of development of a project.

## Annexure A

	Envisaged Barriers of Hydro Development (baseline)	Steps to address Barriers by Government of Himachal Pradesh (GoHP)
1.	<p><b>Long processing time for obtaining statutory environment and forest clearances:</b> Development of a hydro power project requires a large number of consents and clearances right from the initial conceptualization of the project to the plant commissioning, in particular environmental and forest clearances. The lack of a predictable and comprehensive regulatory framework leads to significant delays in attaining such clearances. The processing time is of prime importance for hydropower projects as they have the longest gestation period and higher land requirement compared to all other categories of power projects. In some cases, projects face serious challenge to their viability despite being a clean source of energy, thus adversely affecting the targets planned for 12th and 13th Five Year Plans.</p>	<p>As a part of <b>HP IGG DPL II supported by CTF</b> the Department of Energy will introduce a web based real-time monitoring of project milestones, including those relating to environment and social parameters and environmental flows. The real-time monitoring will be effective in identifying delays in achieving project milestones and help GoHP to take immediate necessary steps to facilitate the developers in achieving the requisite clearances for smooth and effective implementation of the Projects. This will also help in identifying key systemic barriers in implementation. Moreover to ensure quality and safety of all ongoing projects in the State, the Government has constituted a committee of empanelled technical experts from different fields, to conduct surprise inspection of project sites.</p>
2.	<p><b>Project identification</b> has often suffered due to projects being identified on the basis of topographical sheets in an ad hoc manner without assessing the river basin as a whole and without proper ground level verification. This results in inadequate attention to environmental concerns including about riparian distance and about ecologically sensitive areas and improper assessment of hydropower potential. When such issues are raised this often results in developers getting dissatisfied with sites identified for project location, leading to disputes and frequent requests for change of project domain.</p>	<p>As a part of <b>HP IGG DPL I</b> GoHP has carried out the digitization of entire basins in the state and also estimated using optimization techniques the hydropower potential in the state. The full digital maps for all the river basins have been prepared. From the digital mapping, the potential hydropower in the state has been estimated at a 27,436 MW (including small hydro and unallotted projects). The digitized maps will now help in ensuring that environmental issues including concerning riparian distance are identified while granting licenses for hydropower plants.</p>
3.	<p><b>Delays from civil society and stakeholder concerns</b> and grievances due to lack of an enabling policy and legislative framework to build consensus on the State's hydropower policies among civil society and communities is another major barrier. Although there are mechanisms that deliver benefits to local communities from hydropower development, they are not often discussed and disclosed often leading to specific grievances at times lead to significant delays.</p>	<p>Innovative and transparent benefit sharing arrangements: As a part of <b>HP IGG DPL I</b>, GoHP issued a public notification regarding the amendment to Local Area Development Fund (2009) to include a long-term benefit sharing policy to provide annuities to affected communities during the lifetime of hydropower projects within the state. Cash transfers are expected to commence as a part of CTF supported <b>HP IGG DPL II</b>. This is in addition to the existing scheme that involves contributions (1.5 percent) of project costs to be paid by developers to a Local Area Development Fund, 2009</p>

	Envisaged Barriers of Hydro Development (baseline)	Steps to address Barriers by Government of Himachal Pradesh (GoHP)
		<p>(LADF) during the construction phase for undertaking local area development activities. All the beneficiaries will be publicly disclosed in DOE website. The State has recently (July 2011) adopted a Policy for “Compensation for Damage to Crops during construction of Power Projects” to recompense for loss of production or income on account of incidental damage to crops on land not acquired for project construction. <b>Such a generous benefit sharing policy does not exist in any other state in India.</b></p>
4.	<p><b>Emerging Issues:</b> The Government both at the center and states such as HP have taken a number of measures in recent years to accelerate hydropower development (of special relevance to private developers are the preparation of a shelf of well investigated projects, which could substantially reduce risk perceptions), streamlining of the clearance procedures, the provisions of open access and trading as per Electricity Act 2003, etc. Efforts are also being made to make long-term debt available. This has generated substantial interest from the private sector in investing in run-of-the-river hydro projects resulting in a record number of applications and allocations. At the same time, the upsurge in investments has also brought with it new set of environmental and social challenges that both the governments (center and state) are trying to address. A number of new policies and regulations are being contemplated which the developers’ worry may cause further delays in the clearance process. Some of the new issues are:</p> <ul style="list-style-type: none"> <li>○ Requirement of minimum “Riparian Distance” of 1-Km between two Projects.</li> <li>○ Conducting the Basin studies prior to grant of final forest clearance</li> <li>○ Enhanced quantum of discharge required to be released downstream of the diversion structure by the Developers (to 20% in place of minimum flow of 15% as per the current policy).</li> <li>○ Stronger environmental impact assessment requirements for obtaining forest clearance.</li> <li>○ Enhanced requirements for preparation of Catchment Area Treatment (CAT) Plans.</li> <li>○ Continuous and enhanced monitoring of mountain ecosystem and in particular the state of glaciers</li> <li>○ Recognition of community rights in the project areas.</li> </ul>	<p>GoHP has anticipated a number of these emerging issues and through the <b>HP IGG DPL series</b> is addressing them in a proactive manner. This in turn will ensure that when the policies becomes effective, HP will already be ahead in facilitating its developers a speedy clearance process.</p> <ul style="list-style-type: none"> <li>(a) To understand basin issues from environmental and social perspective, Cumulative Environmental Impact Assessments (CEIA) of all River Basins was initiated as a part of <b>HP IGG DPL I</b>. HP IGG DPL II supported by CTF will ensure that an implementation plan for Satluj Basin study is ready and studies are progressing for other basins.</li> <li>(b) HP is the <b>only state in India</b> to have mandated environmental flows of a minimum of 15 percent (of the average lean flow) in all hydropower developments for eco-systems, and to provide for the riparian rights of downstream communities. To assure compliance with this Policy, the installation of real time online e-flow monitoring instruments in all new projects is being mandated as a part of <b>HP IGG DPL II</b> supported by CTF.</li> <li>(c) The State is moving towards a river basin approach to the development and implementation of Integrated Basin wide Catchment Area Treatment (CAT) Plans– deemed global best-practice for managing impacts. The State prepared and</li> </ul>

	Envisaged Barriers of Hydro Development (baseline)	Steps to address Barriers by Government of Himachal Pradesh (GoHP)
		<p>finalized an integrated CAT Plan for the Sutlej basin under <b>HP IGG DPL I</b> and similar work is in progress for three other river basins based on high quality disaggregated baseline data on forest cover and quality, erosion intensity, and silt load. A monitoring framework has been put in place to ensure the proper disposal of muck and debris – a visible concern in previous hydropower developments. <b>HP IGG DPL II</b> supported by CTF is strengthening these efforts on completion of scientific planning of CAT Plans in all the basins of the state but also on monitoring the silt and erosion so as to improve life of reservoirs of hydro project. These efforts will significantly reduce the concerns associated with forest clearance and speed up the process.</p>
5.	<p><b>Absence of adequate power evacuation and transmission infrastructure:</b> Uncertainty in availability of transmission lines by the time of completion of projects. Also there are cost allocation issues for planning basin wide transmission corridors for multiple projects where the project's commissioning is staggered over a period of time.</p>	<p>To ensure development of Transmission facilities, the State Transmission Utility (STU) has been constituted and committee meeting regularly held to sought out all evacuation problems.</p>
6.	<p><b>Other Issues:</b>  <b>Land acquisition and contractual problems:</b> There are a number of projects getting delayed due to land acquisition and contractual problems.  <b>Geological surprises:</b> Geological surprises such as flash floods, rockslides and landslides often impede the development process of the project.  <b>Non availability of centralized and reliable hydrological database:</b> Non-availability of topo sheets of project area by the government to private developers remains a key issue affecting development  <b>Lack of access infrastructure:</b> Development of roads &amp; bridges to have easy access to the project sites is crucial for expediting the execution of projects and needs special attention as a large part of hydro power potential in the country is in Himachal Pradesh where accessibility to project sites is a problem due to difficult terrains and geography of the state.  <b>Cost of Funds:</b> Investor confidence in hydro projects is fragile on account of the long gestation period, high initial capital costs, and unbalanced risk profile of the projects on account of information gaps, inherent project risks and local development issues.</p>	<p>While GoHP has tried to address a number of barriers to hydropower development in the state through <b>HP IGG DPL Series</b>, a number of issues still remain some of which are beyond GoHP's control. But GoHP is making sincere efforts to improving the investment climate and remove infrastructural bottlenecks to remove some of these additional bottlenecks. In the long run, economic development steered by hydropower development will provide impetus to accelerate development of sustainable hydropower in the state.</p>

## Annexure B

Sudripta Roy, IAS  
Chief Secretary



Government of Himachal Pradesh  
Shimla-171002  
Tel: (O) 0177-2621022  
Fax: 0177-2621813  
E-mail: [cs-hp@nic.in](mailto:cs-hp@nic.in)

DO No. PS/Pr. Secy/2012-Finance  
Dated: the 20<sup>th</sup> July, 2012

Subject: Himachal Pradesh Development Policy Loan to Promote Inclusive Green Growth and Sustainable Development-reg.

Dear Sh. Gopalakrishnan,

You are aware that the Government of Himachal Pradesh has requested Development Policy Loan of US \$ 200 million with the assistance of World Bank. In the above context, several rounds of discussions have been held with the World Bank team, and a list of prior actions for the loan were mutually finalized. The State Government has successfully completed the prior action points which have been identified by the World Bank as 'condition precedent' for the phase-I in the series.

The State Government is seeking this DPL to support the policy reform program of the State and to promote a paradigm shift towards a more sustainable economic development model that would gel with the State's comparative advantage and abundant natural resources. The objective of the proposed Development Policy Loan (DPL) is to support Government of Himachal Pradesh to undertake critical policy actions with monitorable results, particularly with regard to the energy sector, tourism, industrial and rural development. As requested by the Department of Economic Affairs (DEA), the DPL has been designed to able to access the IBRD and the Clean Technology Fund (CTF).

The program of reforms undertaken by the Government of Himachal Pradesh is aimed at generating growth through the improved management of its natural assets across growth engines of the economy and to promote inclusive green growth and sustainable development. It is anticipated that this DPL will further deepen the reform program, and contribute to several outcomes. In the energy sector, the reforms will enable the State to harness hydropower potential in a sustainable and environment friendly manner. Himachal Pradesh will also implement an innovative benefit sharing scheme based on annuity payments to affected communities during the lifetime of each hydropower project.

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The watersheds of the major north Indian rivers sustain life and support the agrarian economy of over 200 million people in Haryana, Punjab, Uttar Pradesh and Rajasthan. As part of the DPL, the GoHP intends to promote micro-water watershed conservation and development approaches that would contribute to alleviating rural poverty and improve water pondage, crop diversification, productivity and water efficiency in at least one Gram Panchayat per Block.

Managing emissions from industry and promoting cleaner forms of economic growth will be essential to meet the inclusive green growth and sustainable development goal of the State. Himachal Pradesh also has considerable unrealized ecotourism potential for developing these cleaner sources of growth. The reforms will also enable the use of economic instruments for pollution control in the State.

There is strong ownership of the proposed reforms across the departments in the State, and teams have been mobilized to implement the same. In addition, the State is committed to monitor the results and adjust the program as may be required from time to time.

Given the above context, we request that the Ministry of Finance to give us full support to pursue our policy reforms through the Development Policy Loan from the World Bank. Considering that the technical discussions have been undertaken with the Department of Economic Affairs, Ministry of Finance, Ministry of Environment & Forests, Government of India and the World Bank team, and all prior actions have been met by the State Government, I would, therefore, request you for early approval and disbursement under this DPL.

*With deep regards,*

Yours faithfully,

*Sudripta Roy*  
(Sudripta Roy)

✓  
Sh. R. Gopalan, IAS  
Secretary,  
Department of Economic Affairs, Ministry of Finance,  
North Block, New Delhi.

Endst. No. As above

Date: Shimla-2 the 20<sup>th</sup> July, 2012

Copy to Mr. N. Roberto Zaghera, country Director, India for the World Bank, 70 Lodhi Estate, New Delhi-10003.

Chief Secretary to the  
Government of Himachal Pradesh

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## Annexure C

### Methodology for computation of CO<sub>2</sub> Emissions

According to the current methodology, the CO<sub>2</sub> Emission savings have been calculated using the following approach for a period of 20 years (FY13-FY32):

#### 3. BAU Scenario:

The BAU scenario can be defined as a baseline case, which assumes that future hydropower development would be similar to the past and existing trends shall continue. Further, it assumes that 100% of the under construction project would come up by 2032, while 75% of the under clearance projects and other projects under investigation would get commissioned by 2032. The total installed capacity by 2032 is shown as below:

Parameters	Capacity (MW)
Commissioned	8315
Under Construction	3870
Under Clearances	1751
Under Investigation	1154
Incremental Capacity	0
<b>Total (MW)</b>	<b>15089</b>

#### Scenario B:

This scenario assumes that ~76% (excludes foregone and unallotted capacity) of the allotted capacity by GoHP would be commissioned by 2032 due to accelerated development of these project. The following table shows the capacity that gets installed by 2032 in this scenario.

Parameters	Capacity (MW)
Commissioned	8315
Under Construction	3870
Under Clearances	1751
Under Investigation	1154
Incremental Capacity	1334
<b>Total (MW)</b>	<b>16423</b>

#### Scenario C:

This scenario assumes that ~90% (excludes foregone and unallotted capacity) of the allotted capacity by GoHP would be commissioned by 2032 due to accelerated development of these project. The following table shows the capacity that gets installed by 2032 in this scenario.

Parameters	Capacity (MW)
Commissioned	8315
Under Construction	3870
Under Clearances	1751
Under Investigation	1154
Incremental Capacity	4295
<b>Total (MW)</b>	<b>19384</b>

#### Scenario D:

This scenario assumes that ~97% (excludes foregone and unallotted projects) of allotted capacity by GoHP would come up by 2032 due to accelerated development of these project. The following table shows the capacity that gets installed by 2032 in this scenario.

<b>Parameters</b>	<b>Capacity</b>
Commissioned (MW)	8315
Under Construction (MW)	3870
Under Clearances (MW)	1751
Under Investigation (MW)	1154
Incremental Capacity (MW)	5760
<b>Total (MW)</b>	<b>20849</b>

**Ex-ante carbon savings in Scenario B:**

S. No	Year	Energy Generated during DPL (MWh)	Gross Energy with DPL (MWh)	Energy Generated Non-DPL (MWh)	Gross Energy of Non-DPL hydro(MWh)	Auxiliary Consumption (MWh)	Energy Export to grid with DPL(MWh)	Energy Export to grid during Non-DPL phase(MWh)	Emission Factor (tCO2 e/MWh)	Baseline Emission (Mn tons CO2)	Project Emission (tCO2)	Leak-age (tCO2)	Non-DPL Emissions Reductions (Mn tCO2) (A)	DPL Emissions Reductions (Mn tons CO2)	Net Emissions Reduction DPL (Mn tons CO2)
1	2013	0	-	0	-	-	-	-	0.78	-	-	-	-	-	-
2	2014	0	-	0	-	-	-	-	0.78	-	-	-	-	-	-
3	2015	1624104	1,624,104	0	-	24,849	1,599,255	-	0.78	-	-	-	-	1.25	1.25
4	2016	4962978	6,587,082	5471496	5,471,496	100,782	6,486,300	5,387,782	0.78	4.20	-	-	4.20	5.06	0.86
5	2017	512460	7,099,542	1080108	6,551,604	108,623	6,990,919	6,451,364	0.78	5.03	-	-	5.03	5.45	0.42
6	2018	118260	7,217,802	512460	7,064,064	110,432	7,107,370	6,955,984	0.78	5.43	-	-	5.43	5.54	0.12
7	2019	652401	7,870,203	153738	7,217,802	120,414	7,749,789	7,107,370	0.78	5.54	-	-	5.54	6.04	0.50
8	2020	5329584	13,199,787	0	7,217,802	201,957	12,997,830	7,107,370	0.78	5.54	-	-	5.54	10.14	4.59
9	2021	5824699	19,024,486	3405888	10,623,690	291,075	18,733,412	10,461,148	0.78	8.16	-	-	8.16	14.61	6.45
10	2022	4742226	23,766,712	3177252	13,800,942	363,631	23,403,082	13,589,788	0.78	10.60	-	-	10.60	18.25	7.65
11	2023	2727470	26,494,182	5734033.2	19,534,975	405,361	26,088,821	19,236,090	0.78	15.00	-	-	15.00	20.35	5.35
12	2024	626778	27,120,960	1529496	21,064,471	414,951	26,706,009	20,742,185	0.78	16.18	-	-	16.18	20.83	4.65
13	2025	591300	27,712,260	728875.8	21,793,347	423,998	27,288,262	21,459,909	0.78	16.74	-	-	16.74	21.28	4.55
14	2026	3110238	30,822,498	662256	22,455,603	471,584	30,350,914	22,112,032	0.78	17.25	-	-	17.25	23.67	6.43
15	2027	0	30,822,498	55188	22,510,791	471,584	30,350,914	22,166,376	0.78	17.29	-	-	17.29	23.67	6.38
16	2028	1107702	31,930,200	3055050	25,565,841	488,532	31,441,668	25,174,684	0.78	19.64	-	-	19.64	24.52	4.89
17	2029	0	31,930,200	0	25,565,841	488,532	31,441,668	25,174,684	0.78	19.64	-	-	19.64	24.52	4.89
18	2030	29565	31,959,765	55188	25,621,029	488,984	31,470,781	25,229,027	0.78	19.68	-	-	19.68	24.55	4.87
19	2031	0	31,959,765	1052514	26,673,543	488,984	31,470,781	26,265,438	0.78	20.49	-	-	20.49	24.55	4.06
20	2032	0	31,959,765	29565	26,703,108	488,984	31,470,781	26,294,550	0.78	20.51	-	-	20.51	24.55	4.04
<b>Total Cumulative Emission Reduction</b>										<b>227</b>	<b>-</b>	<b>-</b>	<b>227</b>	<b>299</b>	<b>72</b>

**Ex-ante carbon savings in Scenario C:**

S. No	Year	Energy Generated during DPL (MWh)	Gross Energy with DPL (MWh)	Energy Generated Non-DPL (MWh)	Gross Energy of Non-DPL hydro(MWh)	Auxiliary Consumption (MWh)	Energy Export to grid with DPL(MWh)	Energy Export to grid during Non-DPL phase(MWh)	Emission Factor (tCO2 e/MWh)	Baseline Emission (Mn tons CO2)	Project Emission (tCO2)	Leak-age (tCO2)	Non-DPL Emissions Reductions (Mn tCO2) (A)	DPL Emissions Reductions (Mn tons CO2)	Net Emissions Reduction DPL (Mn tons CO2)
1	2013	0	-	0	-	-	-	-	0.78	-	-	-	-	-	-
2	2014	0	-	0	-	-	-	-	0.78	-	-	-	-	-	-
3	2015	1624104	1,624,104	0	-	24,849	1,599,255	-	0.78	-	-	-	-	1.25	1.25
4	2016	4962978	6,587,082	5471496	5,471,496	100,782	6,486,300	5,387,782	0.78	4.20	-	-	4.20	5.06	0.86
5	2017	512460	7,099,542	1080108	6,551,604	108,623	6,990,919	6,451,364	0.78	5.03	-	-	5.03	5.45	0.42
6	2018	591300	7,690,842	512460	7,064,064	117,670	7,573,172	6,955,984	0.78	5.43	-	-	5.43	5.91	0.48
7	2019	4553404	12,244,246	153738	7,217,802	187,337	12,056,909	7,107,370	0.78	5.54	-	-	5.54	9.40	3.86
8	2020	6129810	18,374,056	0	7,217,802	281,123	18,092,933	7,107,370	0.78	5.54	-	-	5.54	14.11	8.57
9	2021	7777172	26,151,228	3405888	10,623,690	400,114	25,751,114	10,461,148	0.78	8.16	-	-	8.16	20.09	11.93
10	2022	6330852	32,482,080	3177252	13,800,942	496,976	31,985,104	13,589,788	0.78	10.60	-	-	10.60	24.95	14.35
11	2023	3996794	36,478,874	5734033.2	19,534,975	558,127	35,920,747	19,236,090	0.78	15.00	-	-	15.00	28.02	13.01
12	2024	749768	37,228,642	1529496	21,064,471	569,598	36,659,044	20,742,185	0.78	16.18	-	-	16.18	28.59	12.42
13	2025	1494018	38,722,660	728875.8	21,793,347	592,457	38,130,203	21,459,909	0.78	16.74	-	-	16.74	29.74	13.00
14	2026	1553936	40,276,597	3717306	25,510,653	616,232	39,660,365	25,120,340	0.78	19.59	-	-	19.59	30.94	11.34
15	2027	1143180	41,419,777	55188	25,565,841	633,723	40,786,054	25,174,684	0.78	19.64	-	-	19.64	31.81	12.18
16	2028	2189387	43,609,163	0	25,565,841	667,220	42,941,943	25,174,684	0.78	19.64	-	-	19.64	33.49	13.86
17	2029	26017	43,635,181	0	25,565,841	667,618	42,967,562	25,174,684	0.78	19.64	-	-	19.64	33.51	13.88
18	2030	0	43,635,181	55188	25,621,029	667,618	42,967,562	25,229,027	0.78	19.68	-	-	19.68	33.51	13.84
19	2031	0	43,635,181	1052514	26,673,543	667,618	42,967,562	26,265,438	0.78	20.49	-	-	20.49	33.51	13.03
20	2032	0	43,635,181	29565	26,703,108	667,618	42,967,562	26,294,550	0.78	20.51	-	-	20.51	33.51	13.00
<b>Total Cumulative Emission Reduction</b>										<b>232</b>	<b>-</b>	<b>-</b>	<b>232</b>	<b>403</b>	<b>171</b>

**Ex-ante carbon savings in Scenario D:**

S. No	Year	Energy Generated during DPL (MWh)	Gross Energy with DPL (MWh)	Energy Generated Non-DPL (MWh)	Gross Energy of Non-DPL hydro(MWh)	Auxiliary Consumption (MWh)	Energy Export to grid with DPL(MWh)	Energy Export to grid during Non-DPL phase(MWh)	Emission Factor (tCO2 e/MWh)	Baseline Emission (Mn tons CO2)	Project Emission (tCO2)	Leak-age (tCO2)	Non-DPL Emissions Reductions (Mn tCO2) (A)	DPL Emissions Reductions (Mn tons CO2)	Net Emissions Reduction DPL (Mn tons CO2)
1	2013	0	-	0	-	-	-	-	0.78	-	-	-	-	-	-
2	2014	0	-	0	-	-	-	-	0.78	-	-	-	-	-	-

3	2015	1624104	1,624,104	0	-	24,849	1,599,255	-	0.78	-	-	-	-	1.25	1.25
4	2016	4962978	6,587,082	5471496	5,471,496	100,782	6,486,300	5,387,782	0.78	4.20	-	-	4.20	5.06	0.86
5	2017	1064340	7,651,422	1080108	6,551,604	117,067	7,534,355	6,451,364	0.78	5.03	-	-	5.03	5.88	0.84
6	2018	591300	8,242,722	512460	7,064,064	126,114	8,116,608	6,955,984	0.78	5.43	-	-	5.43	6.33	0.91
7	2019	4553404	12,796,126	153738	7,217,802	195,781	12,600,345	7,107,370	0.78	5.54	-	-	5.54	9.83	4.28
8	2020	6129810	18,925,936	0	7,217,802	289,567	18,636,369	7,107,370	0.78	5.54	-	-	5.54	14.54	8.99
9	2021	7777172	26,703,108	3405888	10,623,690	408,558	26,294,550	10,461,148	0.78	8.16	-	-	8.16	20.51	12.35
10	2022	6330852	33,033,960	3177252	13,800,942	505,420	32,528,540	13,589,788	0.78	10.60	-	-	10.60	25.37	14.77
11	2023	7615550	40,649,510	5734033.2	19,534,975	621,937	40,027,572	19,236,090	0.78	15.00	-	-	15.00	31.22	16.22
12	2024	1900832	42,550,342	1529496	21,064,471	651,020	41,899,322	20,742,185	0.78	16.18	-	-	16.18	32.68	16.50
13	2025	1494018	44,044,360	728875.8	21,793,347	673,879	43,370,481	21,459,909	0.78	16.74	-	-	16.74	33.83	17.09
14	2026	1553936	45,598,297	3717306	25,510,653	697,654	44,900,643	25,120,340	0.78	19.59	-	-	19.59	35.02	15.43
15	2027	1596510	47,194,807	55188	25,565,841	722,081	46,472,726	25,174,684	0.78	19.64	-	-	19.64	36.25	16.61
16	2028	2189387	49,384,193	0	25,565,841	755,578	48,628,615	25,174,684	0.78	19.64	-	-	19.64	37.93	18.29
17	2029	26017	49,410,211	0	25,565,841	755,976	48,654,234	25,174,684	0.78	19.64	-	-	19.64	37.95	18.31
18	2030	0	49,410,211	55188	25,621,029	755,976	48,654,234	25,229,027	0.78	19.68	-	-	19.68	37.95	18.27
19	2031	0	49,410,211	1052514	26,673,543	755,976	48,654,234	26,265,438	0.78	20.49	-	-	20.49	37.95	17.46
20	2032	0	49,410,211	29565	26,703,108	755,976	48,654,234	26,294,550	0.78	20.51	-	-	20.51	37.95	17.44
<b>Total Cumulative Emission Reduction</b>										<b>232</b>	<b>-</b>	<b>-</b>	<b>232</b>	<b>447</b>	<b>216</b>

## References

- Central Electricity Authority Website
- Development Policy Loan (DPL) to promote inclusive green growth and sustainable development in Himachal Pradesh prepared by World Bank – IBRD
- Project Appraisal Document
- Paper on Energy Intensive Sectors of the Indian Economy: Path to Low Carbon Development.
- Climate Investment Plan of Government of India.
- Report on Green Corridors prepared by PGCIL.
- The Report of Working Group on Power for Eleventh Plan (2007-12)
- Government of Himachal Pradesh, 2012, State Climate Change Strategy and Action Plan.
- Asian Development Bank, 2012, Climate change adaptation in Himachal Pradesh: Sustainable strategies for water resources.

## ANNEX 3: FUND RELATIONS NOTE

### IMF Executive Board Concludes 2013 Article IV Consultation with India

Press Release No. 14/63 February 20-, 2014

On January 27, 2014, the Executive Board of the International Monetary Fund (IMF) concluded the Article IV consultation<sup>30</sup> with India.

India's growth has slowed markedly, reflecting global developments and domestic supply constraints, while inflation remains stubbornly high. Led by falling infrastructure and corporate investment, the slowdown has generalized to other sectors of the economy. The financial positions of banks and corporates have deteriorated. The combination of persistently-high inflation, sizeable current account and fiscal deficits intensified the global liquidity tightening-induced balance of payment pressures experienced during the summer, which resulted in significant portfolio debt outflows, and pressures on currency, equity and bond markets. Along with improving external conditions, positive policy steps taken by the authorities have improved market sentiment. The current account deficit, after reaching a record high in FY2012/13 (fiscal year ending March), is narrowing fast, and capital inflows have picked up. While recent policy initiatives have reduced vulnerabilities, the policy space remains strictly circumscribed because of high deficits and debt, and elevated inflation.

Growth is projected at 4.6 percent for fiscal year 2013/14, and should pick up to 5.4 percent in 2014/15 (at factor cost). Stronger global growth, improving export competitiveness, a favorable monsoon, and a confidence boost from recent policy actions should deliver a modest growth rebound. However, fiscal restraint and a tighter monetary stance will act as headwinds, slowing the recovery. CPI inflation is expected to remain near double-digits well into next year, driven by high food inflation that feeds quickly into wages and core inflation; entrenched inflation expectations; the pass through from a weaker rupee; and ongoing energy price increases. WPI inflation is forecast to remain above the Reserve Bank of India's comfort zone, given that supply constraints will ease only gradually. The current account deficit should narrow in fiscal year 2013/14 to about 3.3 percent of GDP, supported by rebounding exports, higher remittances, rapidly-shrinking gold imports, weakening domestic demand, and broadly stable oil prices.

The principal risk facing India is the inward spillover from global financial market volatility. Protracted economic and financial volatility (triggered by advanced economies' exit from unconventional monetary policies), a lengthy Euro area growth slowdown, and higher oil prices are the main external risks. Slow progress on structural reforms, high inflation, failure to ease supply constraints, and resorting to expansionary fiscal policy are key domestic downside risks. On the upside, going beyond announced reforms or faster-than-envisaged legislative progress would lead to higher growth and reduce economic vulnerabilities.

#### Executive Board Assessment<sup>31</sup>

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<sup>30</sup> Under Article IV of the IMF's Articles of Agreement, the IMF holds bilateral discussions with members, usually every year. A staff team visits the country, collects economic and financial information, and discusses with officials the country's economic developments and policies. On return to headquarters, the staff prepares a report, which forms the basis for discussion by the Executive Board.

<sup>31</sup> At the conclusion of the discussion, the Managing Director, as Chairman of the Board, summarizes the views of Executive Directors, and this summary is transmitted to the country's authorities. An explanation of any qualifiers used in summings up can be found here: <http://www.imf.org/external/np/sec/misc/qualifiers.htm>

Executive Directors commended the Indian authorities for their ability to maintain macroeconomic and financial stability amid a challenging macroeconomic landscape. Directors welcomed ongoing efforts, including recent policy initiatives, to reduce external vulnerabilities, rebuild buffers, and revive investment. They noted, however, that growth has slowed markedly and inflation remains persistently high, while spillovers from global financial market volatility continue to pose a significant risk. Against this backdrop, Directors underscored the need to rein in inflation, prudently consolidate the fiscal position, and accelerate structural reforms to address supply bottlenecks and promote sustainable and inclusive growth.

Directors supported the central bank's policies of rupee flexibility and limited foreign exchange intervention. They welcomed the gradual, cautious move toward further external liberalization. Directors considered that these measures are important tools to deal with capital account pressures, which, if they were to re-emerge, should be complemented by judicious use of reserves, tightening of monetary conditions, and additional fiscal adjustment. Directors encouraged continued efforts to improve the financing of the current account deficit. Measures to facilitate foreign direct investment inflows and deepen domestic capital markets should continue to help reduce external vulnerabilities.

Given entrenched double-digit inflation expectations, Directors recommended that the authorities maintain the monetary policy stance appropriately tight, and stand ready to raise the policy rate further so as to bring down inflation to more sustainable levels. They welcomed recent initiatives to strengthen the monetary policy framework with a clear communication strategy, aimed at enhancing the effectiveness of monetary policy.

Directors commended the government's commitment to fiscal consolidation and supported its medium-term targets. To this end, they emphasized the need for a comprehensive package of measures, comprising both tax and subsidy reforms, to ensure the quality and sustainability of consolidation. Rationalizing fuel and fertilizer subsidies and introducing the goods and services tax are essential to create fiscal space, while safeguarding priority capital spending and targeted social programs, particularly health and education.

Directors stressed that reviving growth and raising the long-term growth potential require broader structural reforms to improve infrastructure, the business climate, and the pricing and allocation of natural resources. They also saw as key priorities reforms aimed at boosting agricultural productivity and supporting formal job creation, by relaxing labor laws and addressing skills mismatches.

Directors recognized that India's financial system is well capitalized and supervised, and welcomed progress in implementing the recommendations of the FSAP Update. They welcomed in particular recent measures to enhance supervision and increase bank provisioning. Directors noted nevertheless that deteriorating corporate financial positions and weakening bank balance sheets, especially among public banks, warrant close monitoring. They encouraged the authorities to further strengthen prudential regulation of banks' asset quality classification and concentration risks, and pay due regard to the inter-linkages between corporate vulnerabilities and banking system health. Steps are also needed to modernize the legal and insolvency framework.

## **ANNEX 4: POVERTY AND SOCIAL IMPACT ANALYSIS (PSIA)**

### **1. Motivation for a Poverty and Social Impact Analysis (PSIA)**

The Himachal Pradesh Development Policy Loan to Promote Inclusive Green Growth and Sustainable Development proposes innovative reforms that support the Government of Himachal Pradesh to make a paradigm shift toward a socially and environmentally sustainable economic growth model. The proposed reforms cut across multiple sectors (energy, rural, tourism and industry), each of which serve a dual purpose by targeting a number of state-level economic outcomes while contributing to the state's objective to increase its revenue base and to become carbon-neutral by 2020.

At the macro level, the proposed reform program will contribute to the ongoing transformation of the state's economy toward secondary, tertiary and infrastructure sectors while providing a new impetus to growth, which have the potential to alter the state's development trajectory in a context of high environmental consciousness and cohesive social organization. At the micro level, the benefits of the reforms will be shared with local populations through a range of community schemes, which will have the effect of redistributing the gains from macroeconomic reforms and mitigating the impact of negative spillovers while building local support for the reforms. Two specific areas of interest at the micro level are: (i) the first-of-kind benefit-sharing program to complement hydropower projects across Himachal Pradesh, which will target social sustainability in project-affected communities through mandatory provisions to a Local Area Development Fund and distribution of cash benefits to local communities; and (ii) promotion of community-based watershed management approach in agricultural and horticultural sectors and establishment of agribusiness centers, which will target poverty alleviation through improved rural incomes and better market access.

It is anticipated that the reforms under the DPL will have positive social and poverty consequences, which is further suggested by the analytical work conducted in the first part of this PSIA (see below). Nevertheless, it is important to assess the extent to which this will happen, and to provide feedback in case of hiccups and recommendations for course correction in implementation. Since the program constitutes the first inclusive green growth and sustainable development approach for India and is being implemented in a frontrunner state in terms of socioeconomic and environmental outcomes, it will likely reflect certain complementarities and tensions between growth on the one hand, and social and environmental sustainability, on the other. An understanding of the potential multidimensional impacts and local responses to the reform program will ultimately increase the effectiveness and long-term sustainability of the reforms set out in the DPL. A Poverty and Social Impact Analysis (PSIA) has therefore been undertaken, in keeping with the Program Document for DPL I, to keep track of the potential impacts of the unfolding reform.

### **2. Analytical Strategy**

The design of the PSIA is determined by the complexity of the proposed reform program, which is associated with a number of methodological challenges. First, since the policy implementation of the thrust of a DPL takes place over time, welfare and social impacts are expected to unfold continuously, making it difficult to capture them through a single study or to attribute the observed changes to any particular policy. Secondly, the attribution challenge

is complicated by possible mixed impacts stemming from the multi-sectoral nature of the program, which targets rural development along with a major policy effort to transform the economy toward secondary, tertiary and infrastructure sectors. Third, some of the sectors under reform are geographically dispersed and more likely to produce state-wide impacts (such as productivity and employment effects of watershed and tourism reforms, respectively), whereas others are heavily concentrated in certain districts and blocks whose impacts will be felt most intensely at the community level (such as social and environmental impacts of hydropower development or economic impacts of benefit-sharing). Finally, some of the impacts of the reform program cannot be captured at all, because their impacts will go beyond HP, as in the case of hydropower developments providing electricity to other regions of India.

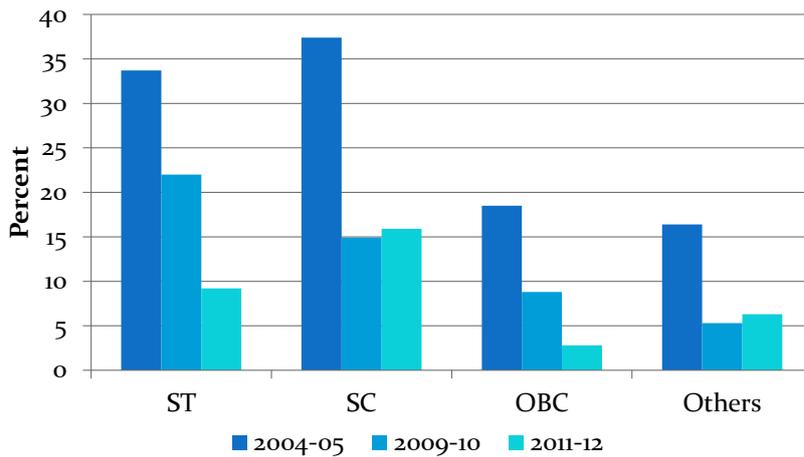
Based on the above, the PSIA is designed as a multi-stage, mixed methods study, which aims to capture the unique development context of HP as a background; perceptions of local populations about the state's new development trajectory and the ongoing reform process; and community-level responses to a selective group of reforms that are expected to play a role in the overall success of the program (i.e. benefit-sharing and community-based watershed management). The objective of the study is to inform long-term sustainability of the program by bringing the perceptions of the local population to the attention of policymakers, as well as improving the implementation of community-based schemes supported by the reform program.

The first stage of the PSIA documents the state's development outcomes over time, using the National Sample Survey (NSS) and drawing upon other surveys, such as the National Family Health Survey (NFHS). This is complemented with primary data from a state-wide ethnographic study, which captures qualitative accounts of the hopes and fears of the local population. Together, these sources provide an understanding of the state's social and economic development trajectory and serve as an early assessment of the opportunities and pitfalls associated with the reforms being implemented as part of this DPL. This analysis has been presented to the GoHP in November 2013.

### **3. Preliminary Findings**

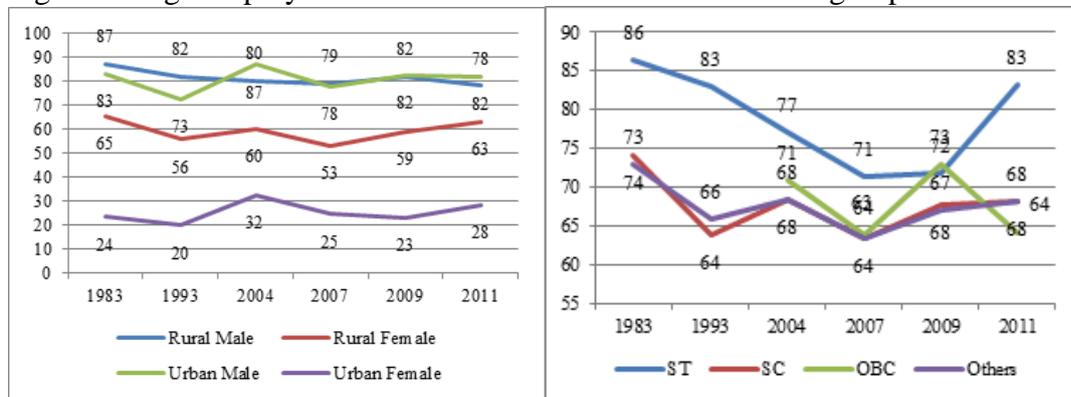
The NSS data shows that poverty headcount declined for all groups in Himachal Pradesh since the mid-2000s, including the period between 2009/10 and 2011/12 during which the reforms included in the DPL program were being rolled out (figure 1). Similarly, the overall employment rate has been consistently high, especially in comparison to neighboring states, though there are important differences across social groups (most notably among scheduled castes, tribes and other backward castes). However, women's employment has been consistently high in Himachal and it increased considerably since 2009, despite remaining below male employment especially in urban areas (figure 2). Employment in the construction sector also increased rapidly since the industrial reforms in the mid-2000s, but it flattened since 2009.

Figure 1. Poverty declined for all groups since 2004/05



Source: NSS.

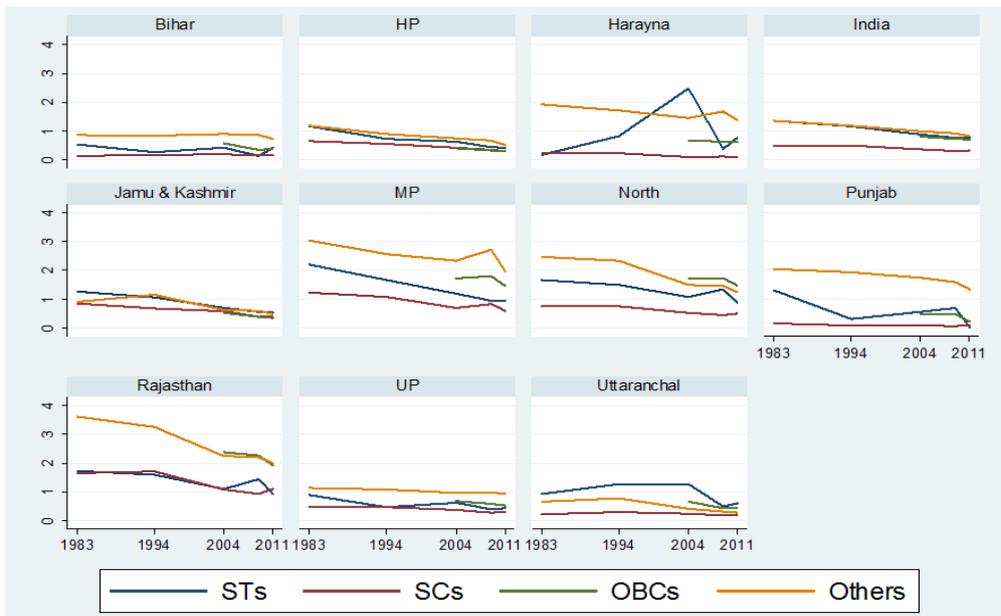
Figure 2. High employment rates with differences across social groups



Source: World Bank calculations based on National Sample Survey data for individuals aged 15-59.

The other secondary sources used in the PSIA document favorable trends in education, health and governance in Himachal over the past decades. The PSIA documents these favorable outcomes within the context of Himachal’s equitable land distribution (figure 3); historically strong governance record, underpinned by informality, smallness and availability of central government grants; and diverse yet cohesive community life. Looking forward, the qualitative component of the PSIA suggests that the local population is proud of the state’s accomplishments, view the ongoing reforms favorably, and would like to see more growth. However, the latter is accompanied by concerns around social and environmental sustainability of the state’s development trajectory. For example, half of the respondents interviewed across seven districts were evenly divided between those who identified “maintaining ecological balance” as their priority for the future of the state, and those who identified “economic development or modernization”.

Figure 3. Equitable land distribution



Source: World Bank calculations based on National Sample Survey data.

The second stage of the PSIA is designed to monitor the social and welfare impacts of benefit-sharing and community-based watershed management at the community-level in order to inform effective implementation and to promote long-term sustainability of hydropower, which is envisaged to be the key driver of economic growth in HP going forward. Focusing specifically on districts and blocks affected by these two pillars of the reform program, a household survey will assess the extent to which household welfare outcomes changed over the course of reform implementation, as well as capturing spillover effects resulting from hydropower development and establishment of agribusiness centers. In addition, qualitative key informant interviews in each village, and focus group discussions in each Panchayat, will give local populations an opportunity to voice their experiences with the reform process and spearhead a form of community monitoring. Given the methodological and attribution challenges discussed earlier, and given the fact that many reforms have already been rolled out, the primary focus of the second phase of the PSIA will be on documenting a series of target outcomes at the micro level, as well as identifying any potentially unintended social and economic consequences on household wellbeing; and, local responses to the reform process in the sampled communities.

## ANNEX 5: ENVIRONMENT AND SOCIAL ASSESSMENT

### Background

1. The State of HP forms central part of Indian Himalayan Region. About 17 percent area of the State is under permanent snow cover and glaciers and about 30-40 percent of the area is under seasonal snow cover forming unique water reservoir. With a geographical area of 55,673 square kilometers and population of 6.6 million, HP accounts for 1.6 percent of the national geographical area and about 0.6 percent of India's population. Of the population of about 6.6 million, 90 percent still reside in rural areas. It is also geographically different from most Indian states located in the plains. HP is largely mountainous, but exhibits extraordinary biological diversity. Except for a few pockets bordering Punjab and Haryana, altitudes span from 400 meters to almost 7000 meters above sea level. Of the aggregate geographical area, almost two-third is officially classified as forests, although actual forest cover is lower. The hilly terrain and forest cover contribute to low availability of land for traditional agriculture, and net sown area is only about 15 percent of the total. The population density in the State (at around 110 per sq. km.) is lower than the national figure of 320 per sq. km., largely due to relatively low and scattered population in the hill and forest areas.

2. The Himalayan ecosystem is highly vulnerable due to its ecological and geological sensitivities coupled with increasing population load and exploitation of natural resources. These effects are likely to be exacerbated due to the region's reliance on monsoons and snow fed rivers which could be affected by climate change variations induced by factors such as increased temperature, altered precipitation and extreme flood or drought conditions. The Indian Himalayan region is home for 45 percent of India's population and is pivotal to the development of the region and livelihoods of people.

3. A major portion of the watersheds of some of the major Himalayan Rivers such as Sutlej, Yamuna, Beas, Ravi and Chenab, transcends from western Himalayas and passes through HP. The ecological criticality of the watersheds formed by these rivers transcends the territorial limits of the State with the neighboring states. Every year, about 1,200,000 million cubic meters flows through these Himalayan Rivers, which in turn provide water for drinking, irrigation, and hydropower generation in the State. Owing to the presence of the five perennial rivers, the State possesses a huge untapped hydropower potential which is the major source of economic and social development. Realizing this potential, the GoHP has put a high priority on judicious exploitation of the unrealized hydropower potential in an efficient manner, which is important, not just as a source of renewable and low carbon "green energy" but also as a critical source of revenue for the State. While it is estimated that the State has a total hydro potential of 20,000 MW (representing about 13 percent of the total hydropower potential estimated for India), only about one third of this potential has been harnessed, so far.

4. **Bank's Engagement in the State on Environmental and Social Management.** The Bank is already working in the State of Himachal Pradesh through its engagement with State Roads and Rural roads projects, Watersheds and bio-Carbon projects, Hydro Projects through State and GoI supported SJVN Limited (SJVNL) in the implementation of 412 MW Rampur Hydropower Project (RHP). Separate Environmental Assessments have been prepared for these projects to address environmental management and social development risks at the project and sectoral levels. Through this engagement, the Bank has provided advice on project specific environmental and social safeguards, as well as on overarching sectoral and

inter-sectoral issues. For example, muck and debris disposal sites have been identified for infrastructure projects including in the transportation sector, while their monitoring has been overseen by the State environmental regulatory bodies. Through its engagement in the rural development sector, the Bank has contributed to improved water and soil conservation practices and to enhanced social equity and inclusiveness. The State has sought to scale up successful models beyond the immediate investment projects.

5. **Environmental and Social Management and its Evolution in the State:** HP's rich and varied natural heritage provides both opportunities and risks to its development strategy. Natural resources are a critical, if underutilized, engine for accelerating growth and poverty reduction. Sustainability of economic growth in HP is contingent upon sustainability of its environmental heritage. HP's key growth and revenue drivers in the medium term are critically dependent on the State's natural resource base. At the same time, resource dependence renders the economy highly vulnerable to the consequences of environmental degradation. While some environmental degradation inevitably accompanies growth, inaction or failure to balance the environmental costs of development with the benefits will have particularly serious consequences for the State – whose opportunities lie in sectors like hydropower and industrial development which are highly dependent on the health of natural resources. Given HP's unique geographic situation and small resource base, protecting rich natural resources assume greater importance than in other states. The State, therefore, recognizes the need to sustain its environmental resources.

6. Low levels of development, poor accessibility, poverty, and land degradation characterize the Watershed in mid Himalayan areas. Land holdings are small (average 1.2 ha), and farming systems are largely rainfed and dependent on traditional cropping practices. This socio-economic scenario occurs within the context of fragile ecosystems with steep topography, poor soils, and periods of intense rainfall. A high degree of human dependence on natural resources has led to overall degradation of environment and natural resource base. However project activities under mid Himalayan projects reverse this process and subprojects are unlikely to exert any significant negative impact on the social and physical environment. On the contrary, the principle aim of the watershed development component is to enhance the natural resource base. In watershed development no significant adverse or irreversible impacts are envisaged, and impacts are manageable within the existing institutional and technical framework of the state.

7. Watershed activities to be undertaken include prevention of soil erosion, reducing run-off, promoting proper water resource management, development of arable and non-arable lands, and restoration of pastures. If not implemented properly, such activities could have adverse impacts on the soil and hydrologic regime of the area, such as changes in surface flow, moderation of peak flow, impact on water quality, slope instability etc. Assessment and mitigation measures are already in place in the watershed projects under implementation. Integrated watershed development will promote afforestation; enhance the environmental contribution of forest areas, while at the same time encouraging economic development of forest areas, which comprises most of the state. Activities that would entail significant conversion, loss or degradation of natural habitats (directly or indirectly) have not been encouraged under watershed development. However, silvi-pasture based activities, management of grasslands, and the chance introduction of exotic species to augment fodder sources may have implications for native species, many of which are already threatened or endangered. This will have to be mitigated through the review of integrated watershed management plans by the Department of Rural Development.

8. The State is also embarking on a program to sustain industrial growth while reducing pollution from industries. The Industry Department has a two pronged approach to sustainable industrial growth: applying corrective action policy for existing industries and promoting / planning environmentally conducive industries for the future, based on a comparative and geographical advantage. In this regard the Department expressed interest in stimulating future industrial growth in the areas of electronics and herbal medicine. The latter is compatible with growth in agriculture and horticulture sectors. With respect to reducing pollution and improving environment performance, the State Pollution Control Board has taken the initiative of promoting of clean technologies and is in a dialogue with the Confederation of Indian Industries (CII) in this regard. Various industries in the state have undertaken several development and welfare schemes as part of their Corporate Social Responsibility (CSR) and efforts are ongoing to document these practices and look for opportunities to strengthen the mechanism for dissemination of such activities through annual reports and disclosure through websites. As regards land acquisition, the industries usually acquire land either through willing seller –willing buyer basis or obtain, on lease basis, from the Land Banks maintained by the Department of Industries. Further, improving public disclosure schemes would add to improved environment performance

9. The State has been accelerating the pace of hydropower development through the active involvement of both the public and private sectors. Hydropower development essentially focused on run of river hydro projects either in series or in cascade. The nature and scale of hydropower development have the potential for important environmental impacts, in particular taking into account the richness of the Mid-Himalayan ecosystems. In response, the GoHP has endorsed a number of risk mitigating tools, ranging from cumulative impact assessments, the maintenance of minimum environmental flows in the river basin, the assessment of hydrological variability and its impact on power generation, the integrated protection of catchment areas, vulnerability assessments from natural hazards like earthquakes, landslide, flash floods and glacial outbursts, etc.

10. Through its engagement in the HP IGG DPL, and based on its developmental needs, the GoHP has undertaken key initiatives to address environmental challenges. For instance, the GoHP (i) established a separate Environment Department (ii) issued a specific regulation on maintaining minimum environmental flows in the downstream of a diversion structure (not less than 15 percent of the minimum flow observed in the lean season) (iii) established a basin level hydropower developer's forum for the Sutlej basin (iv) endorsed the development of integrated catchment area treatment plans for Sutlej and other river basins (v) mandated the preparation of draft state environmental master plan for the State, (vi) and established a Local area Development Fund targeted at affected communities.

11. More recently, the GoHP initiated a study for the assessment of the Cumulative Environmental Impact Assessment (CEIA) of hydropower development in the Sutlej basin, in consultation with the Ministry of Environment and Forests, and intends to pro-actively address related challenges environmental and social management.

12. Government of Himachal Pradesh has also prepared Environment Master Plan (EMP) with a view to enable the State of Himachal Pradesh to simultaneously address issues of ecological and environment restoration and bring convergence along with the development activities taking place in the state by engaging and ensuring close coordination with all the concerned development departments. The EMP has already helped the Government of

Himachal Pradesh in securing Development Policy Loan from The World Bank. Government of Himachal Pradesh expects that future financing of investments for development in a sustainable manner will be further guided by EMP.

13. Sectoral approach is at the core for the preparation of EMP and for mainstreaming environmental concerns into the State's development planning in sectors of economy for thirty years. Three sectors namely Infrastructure, Natural Resources Management and Services have been included. 18 sub sectors encompassing Infrastructure (Roads, highways, rural roads and Transport, Hydropower-generation transmission, and distribution), Tourism, Ecotourism and Art Architecture and cultural heritage, Industry, Mining and Geology, Irrigation and Public Health, Health, Market Infrastructure—including horticulture and agriculture, Rural and Urban Planning) Natural Resources Management (Agriculture, Horticulture, Animal Husbandry Livestock, Forests, Wildlife and Wetlands and Fisheries) and Services (Education, and Vocational training, IT and Telecom, Livelihoods and Waste disposal) have been covered under three sectors in the EMP.

14. The EMP gives baseline information for Infrastructure, Natural Resources and Services sectors based on common parameters namely resource inventory of existing assets of the sector, patterns of planning and development in the sector, technology adopted in the sector along with any changes in technology, stakeholder involvement in environment preservation and restoration, critical environment issues/hotspots associated with the sector, environment initiatives taken by the sector to address critical environment issues, environment related studies carried out in the sector, environment monitoring (key parameters such as air and water pollution) carried out for activities related to the sector and institutional mechanisms within the sector to address identified environment issues, data / documentation pertaining to addressing demographic issues in the context of the sectors.

15. Vulnerability Assessment (VA) has been done based on sectoral baseline data. VA has been done sectorally, spatially and temporally. The unit for assessment of geographical vulnerability is tehsil and district for years 2011, 2021, 2031 and 2041. Sectoral vulnerability is assessed at tehsil level with respect to water, air, land, natural critical habitats, climate change, hazard susceptibility, spatial areas of conflict, quality of life (health) and quality of life (education).

16. The most vulnerable tehsil /district have been identified in terms of Vulnerability Index (VI) for 2011, 2021, 2031 and 2041. VI has been set in the range up to 1.5 to 5.5 and above. This allows comparison of districts with different VI ranges and also gives a glimpse of vulnerability of the State which helps in prioritizing development actions within districts and among districts in Himachal Pradesh.

17. To address the vulnerability related aspects Sectoral Guidelines for each sector covered under EMP has been developed for spreading awareness about the environmental and social issues related to concerned sector, provide information on key policies, plans and regulations, introduce good practices to enhance the development of the sector and associated services and encourage coordinated planning within State Departments. The guidelines for Infrastructure, NRM and Services sectors has identified and addressed sector specific environmental and social issues and their management through an action plan which contains type of response and has suggested intersectoral specific actions across all sectors and responsibilities which have been agreed upon by the State Government's departments. Sector specific issues have been matched with existing policy, plan and programmes. Monitoring

and reporting framework for each sector has been suggested which includes performance indicators. Sectoral guidelines have been concluded with recommendations. The budgetary allocations for recommended actions in the Sectoral Guidelines may be decided on priority for 14 highly vulnerable to very high vulnerable tehsils in 11 districts in Himachal Pradesh as identified through Vulnerability Assessment.

18. EMP has developed inbuilt enabling tools and mechanisms for implementation of activities and recommendations. Public consultation and communication strategy has been formulated to enable the State to better engage with communities and other stakeholders in development and implementation of projects and accrual of benefits to the State. The EMP has also developed suitable institutional arrangements in order to implement the Government of Himachal Pradesh's policies and strategies. For effective and operational coordination and management, formation of High Level Steering Committee has been recommended in EMP. Further, Monitoring and Evaluation protocols (M&E), and training and capacity needs have been identified which will aid implementation of EMP. The Environmental Capacity Enhancement Component envisages three training levels in every department linked to presence of different competencies within each department. M&E protocol has been developed to strengthen the existing structure through specific M&E indicators. Keeping in mind, the State's development vision, development needs of future and vulnerability to climate change, the EMP addresses and balance the development needs and environment concerns for posterity.

19. **Environmental and Social Assessment of Current DPL.** The proposed second HP IGG DPL will support the Government of India (GoI) and GoHP in a paradigm shift towards an environmentally sustainable model of economic growth by promoting improved management of its natural resources, inclusive green growth and sustainable development. The GoHP has expressed interest to adopt and continue reforms in key areas, in building its knowledge base and institutional capacity and in promoting sustainability in its growth agenda.

20. Taking this into account, the team's assessment of the environmental and social impacts of the proposed operation is as follows:

21. Specific country policies supported by the operation are not likely to cause significant adverse effects on the country's environment, forests, and other natural resources. In fact, environmentally beneficial outcomes are expected from this operation, since enhancing the environmental sustainability of growth is an overarching objective.

22. HP's environmental institutions and regulations build upon a comprehensive national level policy framework for environmental and forest management, which sets out elaborate regulations, procedures, and an elaborate distribution of roles and responsibilities between the national and the state governments that cover environmental and natural resource management. Implementation of these is left to state level institutions, with specific intervention of the national level agencies and regulators as per the procedures prescribed at the national level. This operation seeks to strengthen and enhance environmental and social management in key sectors (energy, industry, tourism, rural development) of the State, **and are expected to achieve improved environmental and social results as follows:**

- Micro-watershed plans prepared using IWRM guidelines will promote water use efficiency, soil conservation and watershed conservation leading to improved

agricultural resilience. **Watershed management** generates well documented environmental benefits in the form of soil conservation, habitats for bio-diversity, improved forest cover and reduced sedimentation;

- The incentives introduced **in industrial development** will promote adoption of clean technology and improvement of environmental compliance of industries. Removal of incentives for polluting industries will lead to reduction in pollution load and consequent improvement in ambient environment;
- Promotion of tourism in the state will be governed by environmental sustainability criteria developed in the new tourism policy. Also, systematic preparation of city sustainable development plans will lead to sustainable tourism practices;
- Climate change **adaptation and mitigation** considerations will be integrated in state development plans;
- A range of initiatives in the energy sector aim at enhancing the adoption of environmentally sustainable and socially responsible parameters in the ongoing hydropower development program;
- **Adoption and implementation of a Benefit Sharing Mechanism (which will complement the Local Area Development Fund for affected people)** –will provide annuities as direct cash transfers to affected families in the project area during the operational life of hydropower projects. This new policy initiative will apply to all hydro projects allocated (i.e. projects where concession agreements will be signed) by the state government with project proponents after notification of this policy. The Ministry of Power, GoI is also reviewing implementation of this policy for hydro projects, which were allocated before this policy was in place and are being implemented by Central Public Sector Undertakings (Chamera Hydro Project in HP is one such example where this has been already done);
- **Implementation of real time monitoring of environmental flow**, wherein environmental flow will be monitored on real time basis for all hydropower projects, and information will be available on line on the web;
- **Implementation of monitoring tools for environmental and social compliance** defined in project implementation agreements of hydro projects, and will be led by Department of Energy of the GoHP;
- **A comprehensive communication strategy for the environmentally and socially sound hydropower development**, where road map of implementation is being developed;
- **A Grievance Redressal Mechanism** to address the grievances related to the LADF and the Benefit Sharing Mechanism in the form of Grievance Redressal Committee headed by the respective Deputy Commissioner of the district where projects are being implemented will be constituted for all hydro projects;
- **Cumulative Impact Assessments** being **undertaken** by the GoHP under the DPL program will provide better informed decision making to State Environmental Impact Assessment Agencies to take decisions on management of environment and social impacts.

23. The state within the ambit of their own environmental and social assessment systems and that of Government of India's laws and guidelines is augmenting and strengthening the regulatory compliance monitoring system to safeguard environmental and social aspects for all sectors which are responsible for economic growth of the state. The past DPL programs have provided a reasonable standard where it can effectively start monitoring projects from

environmental and socially sustainable outputs and outcomes that will bring improvement in the existing system. It is in this context that this operation seeks to strengthen and enhance environmental and social management in key sectors of the State, in particular in the industry, tourism, hydropower development and watershed management sectors, where key policy changes that are expected to achieve improved environmental and social outcomes.

24. Other reforms supported by this operation are expected to have no direct environmental impacts. However, the majority of policy initiatives are improving environmental mainstreaming and integrating environmental management in key growth sectors. The agriculture, horticulture and rural development are to follow integrated watershed development which practices interventions of soil and water conservation, integrated pest management, social equity inclusion and livelihoods improvement. Throughout these sectors, the State intends to deepen the engagement with host communities and stakeholders, and move towards a participatory approach to developmental planning.

25. A Poverty Social and Impact Assessment for the proposed reforms has been conducted to monitor ex-post the success of these reforms. The lessons learned from the PSIA are expected to enhance environmental and social management in key growth sectors of the State.

26. **GoHP has recognized the need for intensive stakeholder consultations.** In an effort to improve inclusion, GoHP sought inputs from civil society and other key stakeholder, which is also encouraged (but not required) \ under the Bank’s operational policies for DPL operations. A series of consultations were held by the GoHP on various inclusive green growth and sustainable development aspects of the DPL program which started from the first DPL and still continuing as per table below.

**Table 3: Calendar of Consultations**

<b>Date</b>	<b>Venue</b>	<b>Target Audience</b>
July 27,2011	SERT, District Solan	NGOs and Community Based Organizations (CBOs)
July 28,2011	HP Agriculture University, Palampur, District Kangra	Government Officials of stakeholder departments
July 28,2011	Community Centre, Sujampur, District Hamirpur	Community members and public representatives at Block and Panchayat levels
July 28/29,2011	Basal (Solan Block) and Srinagar (Kandaghat Block) Panchayats of District Solan	NGOs, CBOs and community
July 29,2011	Office of Deputy Commissioner-cum- District Magistrate, Dharmshala District, Kangra	Government Officials of stakeholder departments
July 30,2011	Office of Deputy Commissioner-cum- District Magistrate, Hamirpur District, Hamirpur	Government Officials of stakeholder departments

August 3,2011	Office of Deputy Commissioner-cum- District Magistrate, Una District, Una	Government Officials of stakeholder departments
August 8,2011	HP Secretariat, Shimla District, Shimla	Senior Government Officials
November 14, 2011	Shimla - The Peterhof Hotel	Members of the State Climate Change Centre, Scientists, Academics. The World Bank participated in part of this event.
November 29, 2011	Conference Hall of the Directorate of Health, Parimahal, Shimla	Hosted by the World Wildlife Fund of India. This was attended by stakeholder departments representing Agriculture, Horticulture, Industry, Tourism, and Energy, as well as representatives of hydropower producers, NGO and members of eco-clubs.
November 30, 2011	State Educational Research & Training (SERT) Institute, Solan	Hosted by the World Wildlife Fund of India. The audience consisted of Government Officials, stakeholder departments, NGOs, CBOs, teachers, members of eco-club and representatives of industry associations. The World Bank also participated in these proceedings.
October 11, 2012	Himachal Forest Research Institute (HFRI), Panthaghati, Shimla.	Peer group consultation on Cumulative Environment Assessment Studies of Satluj Basins in Himachal Pradesh was undertaken by GoHP in the presence of stakeholder departments
August 16, 2013.	Conference Hall, HP State Council for Science, Technology, & Environment, Shimla, Himachal Pradesh	Peer group consultation on Cumulative Environment Assessment Studies of Satluj Basins in Himachal Pradesh was undertaken by GoHP in the presence of stakeholder departments
April 4, 2013 and October 10, 2013.	Conference Hall, HFRI, Panthaghati, Shimla, (H.P.)	Peer group consultation on Cumulative Environment Assessment Studies of Chenab Basins in Himachal Pradesh was undertaken by GoHP in the presence of stakeholder departments

October 23, 2013	"Emerging Issues and Challenges in REDD+"	A stakeholder meeting for selection of Pilot Landscapes for implementing the programme was convened for discussions based on the parameters provided by the USAID team during their visit to Shimla in the first week of June and selected pilot landscape (Satluj Landscape) comprises Kotgarh forest division (Kumarsain and Kotgarh ranges), Anni forest division (Chowai, Nither and Arsoo forest ranges) and Nankhari range of Rampur forest division.
December 7, 2013	SJVN's Auditorium , Jhakri, District Shimla, Himachal Pradesh	Community and stakeholders consultation on Cumulative Environment Assessment Studies of Satluj Basins in Himachal Pradesh was undertaken by GoHP in the presence of peer reviewers, stakeholder departments, community and civil society.
December 10, 2013	Deputy Commissioner Office, Reckong Peo, District Kinnaur.	Community and stakeholders consultation on Cumulative Environment Assessment Studies of Satluj Basins in Himachal Pradesh was undertaken by GoHP in the presence of peer reviewers, stakeholder departments, community and civil society.
January 22, 2014	Himachal Pradesh Secretariat, Armsdale Building, Shimla., H.P.	Stakeholder Department's workshop on communication needs of hydro development in H.P.
January 31, 2014	Hotel Holiday Home. Shimla, H.P.	Stakeholder Departments brainstorming workshop on green growth with resource persons from GoI and Civil Society (CSE).