

## ADDITIONAL INFORMATION TO ECONOMIC AND FINANCIAL ANALYSIS

**Table 1: Summary of New Technical and Vocational Education Training Programs to be Funded under Himachal Pradesh Skills Development Project**

Types of training programs	Numbers of expected trainees during the project period 2017–2021	Target trainees	Average expected benchmark minimum wage (W <sub>0</sub> ) in the absence of trainings to be funded under the project	Duration of training	Level of competency to be achieved after completion of training
Short-term vocational training and livelihood development programs <sup>a</sup>	55,720	Needy youth who are currently neither enrolled in any education or training programs, nor are they employed	Weighted average of minimum wage offered under the Mahatma Gandhi National Rural Employment Guarantee Program and minimum daily wages mandated by Government of Himachal for unskilled, semi-skilled and skilled workers	Around 300-400 hours	NSQF levels 3 and 4
Long-term technical education program offered in Women's polytechnic in Rehan, Kangra	900	Females aged 16 to 18 years	Weighted average of minimum daily wage of semi-skilled workers across sectors in Himachal Pradesh	2-year program	3 years diploma offered by the Himachal Pradesh Technical Education Board
Bachelor of vocational education (3-year programs)	2,880	Students enrolled in government arts and science colleges	Weighted average of minimum daily wage of skilled workers across sectors in Himachal Pradesh	3 year program (around 2000 hours of theory and 1200 hours of practical)	NSQF level 5 to 7
Short-term employability enhancement programs for 3 <sup>rd</sup> year students	5,500	Students enrolled in the third year of degree programs in government arts and science colleges	Weighted average of minimum daily wage of semi-skilled workers across sectors in Himachal Pradesh	Between 300 to 400 hours depending on specific trade and job role	NSQF 5 and 6

B. Voc. = Bachelor of Vocational Education, NSQF = National Skills Qualification Framework

<sup>a</sup> Around 8,000 of these trainings will focus on developing urban and rural livelihoods within the proposed city livelihood development centers and rural livelihood development centers.

**Table 2: Base Model for Computing Returns to TVET Programs Funded under Himachal Pradesh Skills Development Project**

Types of training programs	Numbers of expected trainees	Expected attrition rates (small p in the equation below)	Expected certification rates	Expected placement rates	Effective placement rate (small q in the equation below)	Expected benchmark minimum wage without intervention ( $W_0$ )	Expected wage for those who are successfully placed after intervention ( $W_1$ )	Average expected wage for all trainees after intervention ( $W. Eff$ )
Short term vocational training and livelihood development programs	55720	5%	80%	40%	30%	2.6	3.5	3.1
Long-term technical education program offered in Women's polytechnic in Rehan, Kangra	900	10%	80%	40%	29%	3.2	3.6	3.4
Bachelor of vocational education (3 year program)	2880	5%	80%	40%	30%	3.6	4.3	4.0
Short-term employability enhancement programs for third year college students	5500	5%	80%	40%	30%	3.2	3.6	3.4

B. Voc. = Bachelor of Vocational Education, NCVT = National Council of Vocational Training, NSQF = National Skills Qualification Framework.

Note:

- (i)  $W_0$  is the likely base wage which youth at different initial levels of education / skills will receive *without* enrolling for any of the training programs under the Himachal Pradesh Skills Development Project.  $W_0$  is estimated for all the above mentioned types of beneficiary cohorts separately. Since the short term vocational training programs and livelihood development programs consist of trainees from NEET group and informal sector workers who do not have any certification, the expected wage without intervention ( $W_0$ ) is estimated by taking weighted average of minimum daily wages under the Mahatma Gandhi National Employment Guarantee Scheme and the minimum daily wages mandated by Government of Himachal Pradesh for unskilled, semi-skilled, and skilled workers across sectors.
- (ii) For trainees who will join the women's polytechnic in Rehan, Kangra, and the college students who enrol in the short term employability programs,  $W_0$  is assumed to be the weighted average of minimum daily wages of semi-skilled workers across sectors in Himachal Pradesh. For college students who enrol in the bachelor of vocational education program,  $W_0$  is assumed to be the weighted average of minimum daily wage of skilled workers across sectors in Himachal Pradesh.

$W_1$  is the likely market wage for trainees who get formal sector jobs (i.e. placements) after conclusion of training under the Himachal Pradesh Skills Development Project. It is assumed that after completing one's training and certification, a trainee who gets successfully placed, will be able to command the minimum wage ( $W_1$ ) for the next higher level of skilled workers in terms of the competency levels laid down in the NSQF. Therefore, the  $W_1$  for short term

vocational training and livelihood development programs is estimated by taking the weighted average of minimum daily wages of semi-skilled, skilled and highly skilled workers across different sectors.

For trainees enrolled in the women's polytechnic college and short-term employability programs,  $W_1$  is considered to be weighted average of skilled and highly skilled workers across different sectors. For college students who enrol in the bachelor of vocational education,  $W_1$  is assumed to be the weighted average of minimum daily wages of highly skilled workers across different sectors in Himachal Pradesh.

For the base case, it is assumed that in the case of short-term vocational training, 50% of the trainees who are certified will secure wage employment, while the rest will be self-employed. For other types of training namely, the training programs offered at the college level and in the polytechnic, it is assumed that all those who successfully complete the courses will get wage employment.

$W.EFF$  is the expected wage for all trainees in each type of program  **$(W. \text{ eff}) = (p \times W_0) + (q \times W_1) + \{(1-p-q) \times \text{average}(W_0, W_1)\}$**

$p$  is the probability of trainee attrition or drop-out

$q$  is the effective batch placement probability with respect to numbers enrolled, calculated as:

**$q = P(\text{successful placement}) * P(\text{successful certification}) * \{1 - P(\text{trainee attrition})\}$**

**Table 3: EIRR based on Base-Case Scenario**  
(\$ million)

Fiscal Year	Costs			Benefits			Net benefit	PV at 9%
	Capital	Others <sup>a</sup>	Total	Incremental	Non-incremental	Total		
2017	19	8	27	3	0	3	(25)	(25)
2018	15	12	27	3	3	6	(21)	(19)
2019	1	13	13	3	6	9	(4)	(4)
2020	-	13	13	3	9	12	(0)	(0)
2021	-	13	13	4	12	16	3	2
2022	-	-	-	-	16	16	16	10
2023	-	-	-	-	16	16	16	10
2024	-	-	-	-	16	16	16	9
2025	-	-	-	-	16	16	16	8
2026	-	-	-	-	16	16	16	7
2027	-	-	-	-	16	16	16	7
2028–2037	-	-	-	-	160	160	160	43
							<b>NPV=47.82</b>	<b>IRR=17.3%</b>

IRR = internal rate of return, NPV = Net present value

Source: Himachal Pradesh Skills Development Project documents and ADB staff estimates.

a="Others" consist of recurrent costs and private costs (including household outlay and opportunity cost)

**Table 3A: EIRR Scenario after 10 years of project completion**  
(\$ million)

Fiscal Year	Costs			Benefits			Net benefit	PV at 9%
	Capital	Others <sup>a</sup>	Total	Incremental	Non-incremental	Total		
2017	19	8	27	3	0	3	(25)	(25)
2018	15	12	27	3	3	6	(21)	(19)
2019	1	13	13	3	6	9	(4)	(4)
2020	-	13	13	3	9	12	(0)	(0)
2021	-	13	13	4	12	16	3	2
2022	-	-	-	-	16	16	16	10
2023	-	-	-	-	16	16	16	10
2024	-	-	-	-	16	16	16	9
2025	-	-	-	-	16	16	16	8
2026	-	-	-	-	16	16	16	7
2027	-	-	-	-	16	16	16	7
2028	-	-	-	-	16	16	16	6
2029	-	-	-	-	16	16	16	6
2030	-	-	-	-	16	16	16	5
2031	-	-	-	-	16	16	16	5
							<b>NPV=26.41</b>	<b>IRR=15.23%</b>

IRR = internal rate of return, NPV = Net present value

Source: Himachal Pradesh Skills Development Project documents and ADB staff estimates

a="Others" consist of recurrent costs and private costs (including household outlay and opportunity cost)

**Table 4: India's National Skills Qualification Framework**

NSQF Levels	Equivalence
10	Ph.D
9	Masters Degree
7	Bachelors Degree
6	Advanced Diploma
5	Diploma
4	Grade XII
3	Grade XI
2	Grade X
1	Grade IX
Recognition of Prior Learning (RPL)	Grade V to VII

**Table 5: Plan and Budget Allocations**  
(Plan allocations for Eleventh and Twelfth Five-Year Plan of Himachal Pradesh and budget allocation for Twelfth Five-Year Plan period)

Plan expenditure heads (\$ million)	Eleventh FYP (2007-2012) approved outlay	Twelfth FYP (2012-2017) proposed outlay	Budget estimates (FY2013 to FY2017)	Proposed increase in Twelfth FYP over the Eleventh FYP
DOLE	25.8	41.8	70.6	62%
DOHE	91.2	177.1	242.0	94%
DOLE	0.5	0.6	101.9	15%
<b>Total</b>	117.5	219.5	414.5	

DOLE = Department of Labor and Employment, DOTE = Departments of Technical Education, Vocational and Industrial Training, DOLE= Department of Labor and Employment, FYP = five-year plan.

Note: Plan expenditure includes both revenue and capital expenditure combined.

Source: Calculations based on Government Statement A, Himachal Pradesh Twelfth FYP and Annual Plan (2013-2014).

**Table 6: Annual Increase in Budget Allocations (FY2014 to FY2017)**

Departmental head	2013-2014	2014-2015	2015-2016	2016-2017	Average increase (2013-2014 to 2016-2017)
DOLE	23%	1%	76%	-6%	23%
DOHE	15%	8%	45%	3%	18%
DOLE	236%	3%	7%	9%	63%

DOHE = Department of Higher Education, DOTE = Departments of Technical Education, Vocational and Industrial Training, DOLE= Department of Labor and Employment, FYP = five-year plan.

Source: Calculations based on actual expenditure, budget and revised estimates for minor heads for DOTE, DOHE and DOLE from Government of Himachal Pradesh budget documents of various years.

Table 7: Aggregate Expenditure Outturn for Relevant Implementing Agencies (FY2013 to FY2016)

Department of Technical Education, Vocational and Industrial Training												
Aggregate expenditure outturn	2012–2013			2013–2014			2014–2015			2015–2016		
	<i>Plan</i>	<i>Non-Plan</i>	<i>Total</i>	<i>Plan</i>	<i>Non-Plan</i>	<i>Total</i>	<i>Plan</i>	<i>Non-Plan</i>	<i>Total</i>	<i>Plan</i>	<i>Non-Plan</i>	<i>Total</i>
Revenue Expenditure	197%	101%	115%	205%	99%	116%	134%	99%	106%	103%	98%	100%
Capital Expenditure	160%	-	160%	109%	-	109%	102%	-	102%	79%	100%	82%
<b>Total Expenditure</b>	<b>165%</b>	<b>101%</b>	<b>138%</b>	<b>120%</b>	<b>99%</b>	<b>112%</b>	<b>107%</b>	<b>99%</b>	<b>104%</b>	<b>119%</b>	<b>101%</b>	<b>112%</b>
Department of Labor and Employment												
Revenue Expenditure	190%	105%	110%	298%	40%	42%	393%	52%	57%	139%	72%	75%
Capital Expenditure	80%	-	80%	37%	-	37%	21%	-	21%	120%	96%	96%
<b>Total Expenditure</b>	<b>169%</b>	<b>105%</b>	<b>109%</b>	<b>245%</b>	<b>40%</b>	<b>42%</b>	<b>361%</b>	<b>52%</b>	<b>57%</b>	<b>136%</b>	<b>72%</b>	<b>75%</b>
Department of Higher Education												
Revenue Expenditure	173%	102%	119%	94%	89%	90%	131%	86%	97%	100%	99%	99%
Capital Expenditure	100%	-	100%	329%	-	329%	100%	-	100%	303%	-	303%
<b>Total Expenditure</b>	<b>157%</b>	<b>102%</b>	<b>118%</b>	<b>155%</b>	<b>89%</b>	<b>110%</b>	<b>123%</b>	<b>86%</b>	<b>97%</b>	<b>125%</b>	<b>99%</b>	<b>111%</b>

Source: Calculations based on Actual expenditure, Budget and Revised Estimates for minor heads for DOTE, DOHE and DOLE from Budget documents of various years, Government of Himachal Pradesh.

**Table 8: Fiscal Indicators (FY2013 to FY2017)**

	<b>FY2013</b>	<b>FY 2014</b>	<b>FY2015</b>	<b>FY2016 (RE)</b>	<b>FY2017 (BE)</b>	<b>Sum/ (Average)</b>
<b>GSDP (current prices) in \$ million</b>	12,130	13,646	14,902	16,049	17,397	74,124
<b>Expenditure in \$ million</b>						
Himachal Pradesh government expenditure	3,053	3,160	4,568	3,998	4,804	19,583
Education expenditure <sup>a</sup>	459.4	485.7	552.6	553.6	787.8	2839.1
TVET budget <sup>b</sup>	19.4	21.4	24.2	35.2	44.1	144.3
<b>Share (%)</b>						
% GOHP expenditure to GSDP	25%	23%	31%	25%	28%	(26%)
% Education expenditure to GSDP	4%	4%	4%	3%	5%	(4%)
% TVET budget to GSDP	0.16%	0.16%	0.16%	0.22%	0.25%	(0.2%)
% Education expenditure to GSDP	15.0%	15.4%	12.1%	13.8%	16.4%	(14.5%)
% TVET budget to GSDP	0.6%	0.7%	0.5%	0.9%	0.9%	(0.7%)

GOHP= Government of Himachal Pradesh, GSDP = gross state domestic product, TVET = technical and vocational education and training.

<sup>a</sup> Education expenditure is the sum total of the capital and revenue expenditure on elementary education, secondary education, and higher education (including university education).

<sup>b</sup> TVET expenditure is the sum total of the capital and revenue expenditure incurred by the DOTE and DOLE

Source: Budget documents of various years. Government of Himachal Pradesh. *Himachal Pradesh Economic Survey 2015–2016*, Shimla; Government of India, Ministry of Statistics and Program Implementation. *Government of Himachal Pradesh and GSDP Series from National Accounts Statistics*. New Delhi.