

ECONOMIC AND FINANCIAL ANALYSIS

A. Economic Analysis

1. **Sector context.** As elaborated in the Sector Assessment, the modernization of Himachal Pradesh's technical and vocational education and training (TVET) system and stronger integration of vocational training with higher education are urgently required to ensure that the state's youth gain the skills required to make the transition from the primary to the secondary and tertiary sectors, where job prospects are better and remuneration levels are higher.¹ The proposed project will support the Government of Himachal Pradesh (GOHP) in providing vocational training and livelihood development opportunities aligned to India's National Skills Qualification Framework (NSQF) to around 65,000 needy youth over the period 2017–2022. It will improve the quality and extend the reach of TVET training facilities and counselling services to underserved parts of the state, and strengthen industry engagement in the design and delivery of TVET programs.²

2. **Types of training programs and intended beneficiaries.** An aspiration survey was conducted under project preparatory technical assistance to strengthen the design of the project. It covered close to 6,500 youth aged 15–35 years from all 12 districts of Himachal Pradesh.³ Of the respondents, 49% were women. The survey findings, recommendations of the 2012 skills-gap study for Himachal Pradesh, and feedback received from industry associations were taken into account when deciding on the menu of short-term and long-term training opportunities to be supported under the project.⁴ The largest cohort of Himachal's youth to be targeted includes those who are neither working nor currently enrolled in general education or TVET programs. More details are given in the supplementary document.⁵ Around 55,000 such youth will be given the opportunity to enrol in short-term vocational training programs. Of these, 8,000 youth from rural and semi-urban areas, will be able to avail of training, marketing, and other support to develop their livelihoods. These activities will be undertaken in the six city livelihood centers (CLCs) and seven rural livelihood centers (RLCs) to be constructed under the project. Around 6,000 informal sector workers will be able to enrol for recognition of prior learning programs and receive NSQF-aligned certificates, which will improve their employment and earnings prospects and bring them into the fold of the formal sector.

3. To assist GOHP in extending vocational education programs beyond secondary schools (i.e., grades 9 to 12) to undergraduate levels, the project will offer 3-year bachelor of vocational education degrees (NSQF level 7) in selected colleges. It will also offer short-term courses focusing on vocational and soft skills to third-year students in selected colleges so that they become more employable by the time they graduate. To increase the enrolment of women in good-quality TVET programs, the project will establish a new polytechnic for women in Rehan, Kangra. It will have a total enrolment capacity of 720 students and hostel facilities for 120 students. Since construction of the polytechnic will take 2–3 years, and it may take another

¹ Sector Assessment (Summary): Education (accessible from the list of linked documents in Appendix 2 of the main text).

² The NSQF, notified by the Government of India on 27 December 2013, is a competency-based framework that organizes all qualifications according to levels of knowledge, skills, and aptitude. These levels, graded from 1 to 10, are defined according to the learning outcomes that the learners must possess, regardless of whether they are obtained through formal or informal learning.

³ Aspiration Survey of Himachal Pradesh Youth (accessible from the list of linked documents in Appendix 2 of the main text).

⁴ National Skill Development Corporation. 2012. *Skill-Gap Study for Himachal Pradesh, 2012–2022*. New Delhi.

⁵ Additional Information to Economic and Financial Analysis (accessible from the list of linked documents in Appendix 2 of the main text).

year or so to reach full capacity, it is conservatively assumed for the economic analysis that only around 900 students will be able to enrol during the project period of 2017–2022. The benefits of the women’s polytechnic and other training facilities built under the project—CLCs, RLCs, and model career centers (MCCs)—will extend long beyond project completion.

4. **Cost–benefit analysis.** For calculating the economic internal rate of return (EIRR), only the *direct* benefits in terms of improved wages and remuneration that will accrue to the trainees who are covered under the various short-term and long-term TVET programs over the project period were considered. The nationally recognized, NSQF-linked certification acquired after training will help the trainees to secure formal employment or higher earnings from self-employment. The expected benefits of the training interventions focusing on different segments of needy youth are compared with the overall cost of the project. The expected wages earned by target trainees in the absence of the project (W_0) are compared with their expected wages or returns *after* participation (W_1) in the training interventions funded by the project. W_0 for different segments of trainees is calculated as follows:

- (i) In India, the National Rural Employment Guarantee program provides a social safety net for unemployed poor people by offering an income-earning scheme linked to a maximum of 100 days of labor in a year. The minimum wage income offered by this program is taken as the floor W_0 for the target trainees for the short-term vocational training and livelihood programs funded under the project.
- (ii) For informal sector workers who enrol for upskilling under the recognition of prior learning modules, W_0 is estimated as the weighted average of minimum daily wages mandated by GOHP for unskilled (\$2.9) and semi-skilled (\$3.2) workers.⁶
- (iii) For other trainees who enrol in the short-term employability programs in undergraduate colleges, and those who enrol in the women’s polytechnic, W_0 is pegged to the weighted average of minimum daily wages mandated by GOHP for semi-skilled (\$3.2) workers. For college students who enrol in the 3-year bachelor of vocational education program, W_0 is pegged to the minimum daily wage of skilled workers (\$3.6) in Himachal Pradesh.

5. The post-training wages or returns for those who successfully get formal wage employment offers within 6 months of conclusion of training, or become gainfully self-employed (referred to as W_1), are calculated as follows:

- (i) It is assumed that a successfully placed trainee will be able to command the minimum wage (W_1) for the next higher level of skilled worker in terms of the competency levels laid down in the NSQF.⁷ Details of the NSQF competency levels are given in the supplementary document (footnote 5).
- (ii) For self-employed workers who complete the livelihood development programs offered under the project, the pre-training wages are assumed at 1.8 times the

⁶ The state government classifies workers on the basis of skills as follows: an unskilled employee is one whose work involves the performance of simple duties requiring little or no independent judgment or previous experience. A semi-skilled worker is one who performs generally routine work wherein some judgment and skill are required in the discharge of duties, but where important decisions are made by others. A skilled employee is one who is capable of exercising considerable independent judgment in work, discharges duties with responsibility, and possesses comprehensive knowledge of the trade, craft, or industry in which he or she is employed. A highly skilled worker is one capable of working independently and supervising the work of other skilled employees. Government of Himachal Pradesh. Minimum Wage Notification dated 23 July 2016. <http://himachal.nic.in/>.

⁷ For instance, a person working as an “unskilled worker” prior to the training is expected to perform as a “semi-skilled worker” after undergoing proper skills training.

minimum wages mandated for skilled laborers (\$7.8).⁸ The post-training wages are estimated to increase by 3%, which is the expected program outcome. Details of the expected wage differentials for each category of trainees are given in the supplementary document (footnote 5).

6. The general assumptions made while calculating the EIRR include the following: (i) an exchange rate of ₹67.85 = \$1.00; (ii) all prices valued in a domestic price numeraire at FY2016 constant prices; (iii) economic prices of investment costs estimated by converting the financial prices with a shadow exchange rate factor of 1.03 for traded goods and 1.0 for non-traded goods, as well as a shadow wage rate factor of 1.0 for skilled labor and 0.75 for unskilled labor;⁹ and (iv) use of a 9% economic discount rate. The project is expected to generate benefits by improving the employment and remuneration prospects of trainees who successfully complete the training and get certified. The base-case assumptions for calculating the benefits are:

- (i) 76% of the trainees enrolled in the short-term training programs, bachelor of vocational education, and employability modules would complete the training and pass the final assessments, and 72% of women polytechnic students would pass the final assessment.¹⁰
- (ii) Among the successful trainees, 40% will find regular wage employment or gainful self-employment after the training.
- (iii) In the case of short-term vocational training, 50% of the trainees who get hired will secure wage employment, while the rest will be gainfully self-employed. For the training programs offered in colleges and the polytechnic, it is assumed that all those who successfully complete the courses will get wage employment.
- (iv) After accounting for possible attrition and a dropout rate of 5% (10% for women polytechnic students), on average 30% of all those who enrol under the training programs are expected to be successfully placed.¹¹
- (v) Trainees unable to find suitable placement are assumed to return to their pre-training state of employment, albeit on average for a higher number of days of employment per annum on the average owing to their increased employability.
- (vi) The benefit stream accruing from lifetime earnings from increased wage rate and employability is conservatively assumed to continue for 20 years.¹²
- (vii) Detailed pre-training and post-training wage estimates for different types of programs are given in the supplementary document (footnote 5).

⁸ In India, the self-employed workers earned 1.8 times the legal minimum salary in 1999–2000. J. Jutting and J. de Laiglesia. 2009. *Is Informal Normal? Towards More and Better Jobs in Developing Countries*, Paris: Organisation for Economic Co-operation and Development.

⁹ Conversion factors for the shadow exchange rate factor and shadow wage rate factor are based on a recent Asian Development Bank (ADB)-financed project in India: ADB. 2014. *Report and Recommendation of the President to the Board of Directors: Proposed Multitranche Financing Facility to India for the Assam Power Sector Investment Program*. Manila.

¹⁰ It is assumed that 10% women trainees from polytechnic colleges and 5% trainees from other categories will drop out from the training program. Of the total trainees who complete the training course, 80% will pass the final assessment.

¹¹ A survey of ITIs found that for TVET programs, the attrition rate is 2%–3% in the first month of courses. Given that the average duration of the project-supported training is 50 days, the attrition rate is assumed accordingly. K. Premi. *Scheduled Castes and Scheduled Tribes in Industrial Training Institutes – A Study of Five States*. Ministry of Human Resource Development, Department of Education, and National Informatics Centre. India.

¹² The successfully placed individuals are assumed to work for a maximum of 313 days/year (=6/7*365). The post-training working days for dropouts are assumed to be the same as in the pre-training status, i.e., 100 days as in the case of the National Rural Employment Guarantee program. For trainees who complete the training but are unable to secure certification or find suitable placement right after the training, the working days are assumed to be 210 days considering the labor force participation rate (LFPR): (LFPR*313+[1-LFPR]*100).

7. The economic costs include the project capital costs excluding taxes and price contingencies, recurrent costs over the project period, the trainees' private costs in terms of household outlays (for bachelor of vocational education and polytechnic only), and opportunity costs from employment days lost during training.¹³

8. Based on the benefits and cost streams described above, the net present value of the project for the base-case scenario is estimated at \$47.82 million, with an economic internal rate of return (EIRR) of 17.37%. For the calculation, incremental benefits are project outputs that are additional to the ecosystem without the project (i.e., the wage and employability benefits accruing to current batches of trainees during the project investment period), while non-incremental benefits are the benefits created in the ecosystem by replacing the existing unskilled labor supply with more employable and skilled workers. Economic benefits have been taken over a period of 20 years, including the 5-year project implementation period (2017 to 2022), and the following 16 years for sustainable delivery of quality and market-relevant training services. Details are provided in the supplementary document (footnote 5).

8. **Distribution analysis.** The training programs supported under the project aim to enhance the employability and improve the employment prospects of the different segments of needy youth across rural and urban areas of Himachal Pradesh (footnote 1). This includes those below the poverty line and those belonging to backward sections as defined by the Government of India and GOHP. Separate enrolment targets for women in each type of training program have been specified in the design and monitoring framework.

9. The quantifiable direct benefits accruing to the trainees who are covered under *new* training programs funded by the project were considered when computing the EIRR. Other, indirect benefits could not be included because they are difficult to quantify. First, support under the project will improve the quality, effectiveness, and placement rates of the ongoing training programs offered in 50 select industrial training institutes (ITIs) of the state. These ITIs will receive modern training equipment aligned to the 2014 guidelines of the National Council of Vocational Training (NCVT). Nearly 18,000 trainees across these ITIs will now be eligible for the nationally recognized NCVT certificates, which will help them compete for jobs across India. Second, 11 employment exchanges of Himachal Pradesh will be modernized and upgraded to model career centers under the project. Improved outreach, counselling, and placement facilities will enhance the awareness of Himachali youth about the opportunities offered by TVET and will help connect skilled trainees to jobs. Third, measures such as the establishment of a new women's polytechnic and provision of hostel facilities in CLCs will enable women of small towns and rural areas to access good-quality TVET programs. Gender-sensitive counselling services offered at model career centers; funding of vocational training programs focusing on service sector job roles such as retail sales associate, general duty assistant, and customer relationship management; and introduction of bachelor of vocation education courses will expand career choices for women.¹⁴ Outcome and output indicators defined in the design and monitoring framework will be tracked by the management information system on a sex-disaggregated basis. Fourth, all training facilities constructed under the project will provide barrier-free access for people with disabilities. Finally, since all the training programs offered under the project will be designed and executed in close partnership with industry associations and sector skills councils, it is reasonable to expect that workers trained and certified under the project will be able to push up the productivity of the firms and enterprises that hire them. Owing

¹³ For trainees who are currently enrolled in a school or college, the opportunity cost is assumed to be zero.

¹⁴ In 2011–2012, Himachal Pradesh's LFPR was 63% for rural women but only 28% for urban women. It was 87% for rural men and 73% for urban men.

to the various indirect benefits listed above, the EIRR in general should be higher than that in the base case (17.37%).

10. **Sensitivity analysis.** The sensitivity of the EIRR was tested against potential adverse scenarios such as cost overruns, delays, and post-training wages and placement rates being lower than assumed. The EIRR is most sensitive to variations in the post-training wages and placement rate, where even a slight decrease of 10% in these variables affects the EIRR adversely by up to 2.47%. This reflects the need to focus on market responsiveness of training, quality assurance in training, and industry engagement and partnership to assure the economic soundness of the project investment. While the EIRR is also sensitive to variations in capital cost, the risk of cost overruns and delays is mitigated since the process of estimating project costs has been rigorous. Also, the level of advance contracting is high, which will ensure that project activities start even before the loan becomes effective. In all cases, the EIRR exceeds the hurdle rate of 9%.

Table 1: Economic Internal Rate of Return - Sensitivity Analysis

Scenario	Sensitivity Parameter	Variation	EIRR	Switching Value ^a
1	Base case		17.37%	...
2	Capital cost increase	+20%	13.67%	+58%
3	Recurrent cost increase	+20%	15.09%	+98%
4	Lower post-training wages	-20%	13.15%	-43%
5	Higher capital cost and lower post-training wages	+20% -20%	10.11%	+29% -29%
6	Placement rate	+20% -20%	18.55% 16.20%	

... = not applicable, EIRR = economic internal rate of return.

^a The switching values of a parameter is defined as the level of increase and decrease at which the overall net present value of the parameter becomes zero.

Source: Asian Development Bank.

B. Financial Sustainability Analysis

11. This section examines (i) GOHP's commitment to strengthening and reforming its TVET institutions and programs; (ii) the fiscal position of the state and adequacy of budget allocations for TVET programs in recent years; and (iii) sustainability of the TVET reform initiatives beyond the project period of 2017–2022.

12. **State government's commitment to reform.** TVET programs in Himachal Pradesh have traditionally been fragmented across 12 government departments. They had no uniform benchmarks for quality assurance, outcomes, certification, or costs. To reduce fragmentation and duplication across departments, and to prepare an institutional foundation for the project, GOHP established Himachal Pradesh Kaushal Vikas Nigam (HPKVN) in September 2015 as a 100% government-owned company under the Department of Planning (DOP), which is the executing agency for the project.¹⁵ The chief minister of Himachal Pradesh is the chairman of the board of directors (BOD) of HPKVN. The ministers of Technical Education, Labor and Employment, and Rural Development are also members of the BOD, along with the chief secretary, additional chief secretaries, principal secretaries of the Departments of Technical Education, Vocational and Industrial Training (DOTE); Labor and Employment; Higher Education (DOHE); Rural Development, Adviser, department of planning; representatives of

¹⁵ HPKVN was formally incorporated on 14 September 2015 with an initial authorized share capital of ₹10 million (\$147,060) and paid up capital of ₹70,000 (\$1,029).

industry associations and the managing director of HPKVN. The board composition attests to the state government's strong commitment.

13. A separate budget head has been opened under DOP for providing funds to HPKVN.¹⁶ In FY2016, ₹50 million (\$735,300) was allocated, out of which ₹10 million (\$147,060) was released. In FY2017, ₹50 million (\$735,300) was allocated and ₹25 million (\$367,650) was released by December 2016. A 5-year plan, including a detailed expenditure framework, has been formulated. DOP, which is also the executing agency, has given assurance that it will continue to provide additional budget as counterpart financing for the project by way of supplementary grants, as required.

14. **Fiscal position of the state government and budget allocation for TVET.** Himachal Pradesh's overall fiscal position has improved significantly due to the recommendations of the Fourteenth Finance Commission (FFC) of India covering the period 2015–2020.¹⁷ Overall, the FFC increased the share of all states in the central divisible pool of taxes from 32% to 42%. The additional transfer from the Government of India to Himachal Pradesh in FY2016, the first year of the FFC award period, was \$885 million. Assuming that the central divisible pool of taxes will grow steadily and not be subject to sharp fluctuations, Himachal Pradesh is expected to receive an additional amount of around \$4.0 billion over the period 2016–2020 as a result of the FFC award. GOHP therefore has adequate fiscal space to spend on TVET reform and provide counterpart funding for the project.

15. The Department of Higher Education (DOHE) and the Department of Technical Education, Vocational and Industrial Training (DOTE) are also key implementing agencies for the project, along with HPKVN and the Public Works Department. Annualized average budget increases during FY2014 to FY2017 were 23% for DOTE, 18% for DOHE, and 63% for the Department of Labour and Employment (DOLE), another agency responsible for spending on TVET programs (footnote 5). A significant increase for these departments is also proposed in the Twelfth Five-Year Plan of Himachal Pradesh (2012–2017) (footnote 5). This confirms GOHP's continued commitment to TVET. An analysis of actual aggregate expenditures versus budgeted expenditures during FY2013 to FY2016 reveals actual expenditures of more than 100% of the budget allocation for both DOTE and DOHE, underscoring their absorption capacity. In the case of DOLE, the budget was not fully utilized owing to weak offtake under the state's Skill Development Allowance Scheme 2013.¹⁸ The actual expenditure against the budget estimate of \$15 million was 14% in FY2014, 29% in FY2015, and 21% until November 2015 (FY2016). The utilization of this scheme is expected to improve as better, market-oriented, and NSQF-aligned training programs are supported by HPKVN under the project and beyond (footnote 5).

16. Table 2 estimates the fiscal impact of the project on the state government's total budget over the project period. It is based on the assumptions outlined below and described in more detail in the supplementary document (footnote 5):

¹⁶ A separate budget head, "Himachal Pradesh Skill Development Corporation", was created under item "3451" – Secretariat Economic Services".

¹⁷ The Finance Commission is constituted every 5 years, as mandated by the Constitution of India, to examine how the taxes and revenues collected by the Government of India should be shared with all the states.

¹⁸ The Skill Development Allowance Scheme 2013 provides an allowance of ₹1,000 per month (\$15) to youth aged between 16 and 36, with a family income of less than ₹200,000 (\$2,948) per annum, for undertaking skills training.

- (i) Annualized growth rate of 8.5% in the gross state domestic product (GSDP) in current prices based on the average growth rate for FY2015 to FY2016.¹⁹
- (ii) The state government's expenditure assumed to remain constant at 26% of GSDP based on average over FY2013 to FY2017.
- (iii) Average education expenditure at 15% and TVET expenditure at 0.7% of GSDP based on the period FY2013 to FY2017.

Table 2: Fiscal Impact of the Project, FY2018 to FY2022
(\$ millions)

	FY2018	FY2019	FY2020	FY2021	FY2022	Total
GSDP (current prices)	18,859	20,443	22,160	24,021	26,040	111,522
Expenditure						
GOHP total expenditure	4,960	5,377	5,828	6,318	6,848	29,331
Education expenditure ^a	717.9	778.2	843.5	914.4	991.2	4,245.1
TVET expenditure ^b	35.9	38.9	42.2	45.7	49.6	212.3
Project	29.9	28.4	13.8	13.8	14.2	100.0
Share (%)						
% Project to total government expenditure	0.6	0.5	0.2	0.2	0.2	0.3
% Project to TVET expenditure	83.3	73.0	32.7	30.2	28.6	47.1

FY = fiscal year, GOHP = Government of Himachal Pradesh, GSDP = gross state domestic product, HPSDP = Himachal Pradesh Skills Development Project, TVET = technical and vocational education and training.

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

^b TVET expenditure is the sum total of the capital and revenue expenditure incurred by the departments responsible for TVET and for labor and employment.

17. While the outlay for the project represents a significant 47% of the state's TVET spending, it is only 0.3% of the state's total government expenditure over the project investment period. In addition, Himachal Pradesh is expected to receive an additional amount of around \$4.0 billion over the period 2016–2020 as a result of the FFC award. Moreover, several commitments will end at project completion. Assuming steady GDP growth and tax buoyancy, the project will not place any undue fiscal burden on GOHP.

18. **Sustainability of TVET reforms beyond project duration.** TVET reforms will continue to remain a high priority for GOHP even beyond the project duration. Successful implementation of the project will help reduce the high degree of dependence on government jobs among the youth of Himachal Pradesh. The state has the highest ratio of government employees per 1,000 of population in the country, which has resulted in an unsustainably high wage bill.²⁰ Around 33% of the state's expenditure is on account of salaries and wages, and 14% is on account of pensions. Expenditure on public sector salaries amounts to nearly 162% of Himachal Pradesh's plan expenditure, compared with the national average of 59%.²¹ By enhancing the employability of the state's youth, and equipping them to compete effectively for private sector jobs, the project will help to reduce the dependency on government jobs over time.

¹⁹ Government of Himachal Pradesh, Economics and Statistics Department. 2016. *Himachal Pradesh Economic Survey 2015–2016*. Shimla. http://admis.hp.nic.in/himachal/economics/pdfs/EconomicSurveyEng2015_16_A1b.pdf

²⁰ Planning Commission. 2005. *Himachal Pradesh Development Report*. New Delhi.

²¹ Government of India. Open Government Data Platform India. *Government of Himachal Pradesh Standard Object of Expenditure for 2015–2016*. New Delhi.

19. Further, strengthening the state's TVET institutional framework and reducing duplication will yield fiscal savings over time. The project will evolve into a specialized skills development corporation, and establish the foundation for a unified and sustainable skills development mission in Himachal Pradesh. With economic growth, the share of resources required for incremental recurrent costs will continue to fall under the assumption of unchanged proportion of budget allocation to education and TVET.

20. Some future potential revenue-generating areas are evident. First, it is expected that in 5–6 years, HPKVN may be able to tap into some of the funds that private companies are channelling for skills development under their corporate social responsibility mandates. Second, HPKVN will gradually take over the skills development programs of other departments (e.g., Agriculture, Rural Development, Urban Development, Tribal Affairs, Social Justice) and will be able to charge a project management fee to these departments. Third, DOTE will charge the standard government fees (currently \$500–\$750 per student per year) for students at the women's polytechnic in Rehan, Kangra, making this component most likely sustainable.

21. To ensure the sustainability of the assets created, site-specific funding models will be created for CLCs and RLCs during project implementation. The RLCs could act as multipurpose centers for training, marketing, production, and processing of local produce. Marketing of local produce is one potential revenue source for RLCs. The objective of CLCs is to provide self-employment training to urban youth (usually catering to the demand for tradespeople such as electricians, plumbers, or housekeepers). Under this scheme, call centers will be set up to connect the trained youth to the urban population in need of such services. The services will be chargeable and funds will be used for ensuring the sustainability of the CLCs. Eventually, CLCs or RLCs could also earn additional revenue by renting out the facilities for national training programs or to private sector training providers in return for a nominal fee.²²

22. The project management consulting firm that will be engaged under the project will work with HPKVN to develop options and a plan for a self-sustaining financial and operational model for all the project implementing agencies to implement, as well as longer-term revenue generation options; and to monitor financing gaps in operation and maintenance for which fund transfers could be requested from the state and/or central government. All these option will be explored over the medium to long term.

²² e.g. Pradhan Mantri Kaushal Vikas Yojana, National Urban Livelihood Mission, National Rural Livelihood Mission.