Ministry of Science and Higher Education

Quality Human Capital for Quality Higher Education and National Prosperity

Home-Grown Collaborative PhD Programs (HCPP)

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Home-grown Collaborative PhD Programs (HCPPs)

5000 PhD Graduates in Five Years, 2021-2025

Ministry of Science and Higher Education
Federal Democratic Republic of Ethiopia
Addis Ababa, December 2020

Acronyms and Abbreviations

AASTU	Addis Ababa Science and Technology University
AAU	Addis Ababa University
AMU	Arba Minch University
ASTU	Adama Science and Technology University
BDU	Bahir Dar University
DBA	Doctorate in Business Administration
DEd	Doctorate in Education
DPP	Dual/Double PhD Program
EAS	Ethiopian Academy of Sciences
RQF	Ethiopia Higher Education Relevance and Quality Fund
ESSTI	Ethiopian Space Science and Technology Institute
GTP	Growth and Transformation Plan
HCPP	Home-grown Collaborative PhD Program
HEIs	Higher Education Institutions
HE	Higher Education
HERQA	Higher Education Relevance and Quality Assurance Agency
HESC	Higher Education Strategy Center
HETIs	Higher Education and Training Institutions
HrU	Haramaya University
HU	Hawassa University
ICT	Information Communication Technology
IUC	Inter-University Council
JJU	Jigjiga University
JPP	Joint PhD Program
JU	Jimma University
MoSHE	Ministry of Science and Higher Education
MU	Mekele University
SU	Samara University
TVET	Technical and Vocational Education and Training
UoG	University of Gondar
VLIR	Flemish Interuniversity Council (Belgium)
WlU	Wollega University
WSU	Wollayita Sodo University
WU	Wollo University

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Key Terms

Home-Grown Collaborative PhD Program refers to doctoral program in which different HEIs work collaboratively through sharing their staff, finance, infrastructure and facilities to run the doctoral program. It gives wider opportunity to PhD students to work with supervisors, mentors and peers from different disciplines and institutions.

Joint PhD Program (JPP) (also known as Joint Doctorate Program) is a doctoral degree awarded by two (or more) different institutions who share the responsibilities of supervising, coordination and examining a researcher's work towards a PhD degree.

Dual/Double PhD Program (DPP) is a program where students obtain their PhD degree from two different institutions.

Sandwich PhD program refers to a PhD program in which PhD student enrolled in host HEIs move to collaborating institution to take course or laboratory or workshop for certain period. The PhD degree is awarded by the host university. Collaboration under this program includes experience sharing, using facilities in the institutions to undertake part of a study.

Home institution means the institution with which a PhD student has home base or affiliation.

Host institutions refer to degree awarding institution in which the PhD student is registered for HCPP and running the program as primary ownership.

Cohosting institution is an Ethiopian HEI which host a study program together with another HEI. Unlike collaborating institutions, Co-hosting institution can award joint or dual PhD degree together with hosting or co-hosting HEI.

Collaborating institution refers to an institution collaborating for HCPP and to which PhD student travels to undertake part of his/her studies (course work, supervision, laboratory/workshop work, research publications and fieldworks).

Executive Summery

Ethiopia is currently undertaking social, economic, and political reforms. The country, under the leadership of Prime Minister Abiy Ahmed, the 2019 Nobel Peace Prize Laureate, unveiled a "Home-grown Economic Reform Program" aimed at unlocking the country's development potentials designed to propel Ethiopia into becoming the African Beacon of Prosperity by 2030. Education, Science, and Technology sectors are given special emphasis as enablers to boost production and productivity as well to build human capital required in the prosperity plan (2020-2030).

Recent studies indicated that quality of education and economic growth are closely interrelated. In line with this, the new Education and Training Policy integrates education and training with national development initiatives. However, the HEIs are found in the state of low local and international collaboration and partnership, and critically low internal capacity to run PhD programs. There is strong need to improve the low intake capacity, prolonged study duration and low graduation rate of existing PhD study programs. On top of its lower opportunity, running study abroad programs get challenged with high cost to cover that is 1.34 to 3.74 million ETB per PhD student, commonly facing shortage of hard currency and worsened by resulting brain drain.

The above fundamental reasons convinced MoSHE to come up with innovative intervention to produce significant number of PhD holding instructors in national HEIs, here after called HCPP. Under HCPP the following clear goals have been identified. These are:

- Producing 5000 PhD graduates by the end of 2025, the first batch begins in January 2021
- Raising the proportion of PhD holding academic staff from 13% to 30 % in public HEIs by 2025.
- Narrowing required resource gap through effective and efficient mobilization of global resources and use of them via collaboration, partnership, and networking among local and international institutions.
- Ensuring the relevance of PhD programs and respective research outputs.
- Building sustainable in-home capacity of HEIs to produce relevant research outputs and to give internationally competent scientific services through establishment of advanced laboratories and workshops. Example geochemistry, biotechnology, geophysics etc laboratories.

These are aggressive goals and achieving them is a sizable challenge that clearly demands collaboration and partnership and strong system, which is friendly with technology, innovation, swift implementation, regular evaluation, and continuous improvement.

Home-Grown Collaborative PhD Program (HCPP) is a doctoral program in which different HEIs work collaboratively through sharing their staff, finance, infrastructure and facilities to run the doctoral program. It gives wider opportunity to PhD students to work with supervisors, mentors and peers from different disciplines and institutions

HCPP implementation will be coordinated through national HCPP coordination office that will be established at MoSHE. The office will be guided by a national steering committee chaired by the minister, where the state ministers and hosting & cohosting HEIs' presidents are members.

HCPP priority areas are agriculture with focus on its productivity and mechanization, manufacturing, mining, ICT and tourism that are in alignment with national development priorities where 67 PhD programs are identified. The PhD students will be recruited through well designed criteria through rigorous process. The HCPP mainly uses the Traditional PhD Study Model **(**Monograph PhD Dissertation) in which PhD student will produce monograph with at least one publication in peer-reviewed scientific journals, indexed by Scopus, Web of science and/or Pub med and at least two publishable manuscripts. The student support system, course evaluation, proposal review, theses examination and the degree award process are standardized in favor of assuring quality.

The HCPP implementation includes local and international human resource mobilization, inter-institutional collaboration and national PhD student placement to 8 research universities, AASTU and ASTU as a hosting and co-hosting institutions while all other universities will be collaborating. Transdisciplinary approaches, joint research, joint appointments, preparing guest house for visiting professors & hostels for PhD students mainly through renovation of the existing buildings are some of HCPP implementing strategies.

The resource mobilization strategies are designed and facilitated through basket funding scheme by higher education relevance and quality fund office (to be established). Monitoring and evaluations schemes and accountability framework are developed to boost its efficiency. The cost estimation at national level is based on an average value which may result in variation of the costs during the implementation. There will be detailed project plan at each PhD program level focusing on mapping and mobilization of local and international human, financial and physical resources.

Effective implementation of HCPP will result in strong and sustainable collaboration & partnership among HEIs, improved relevance of PhD programs, improved HEIs internal capacity, and enhanced & sustainable engagement of Ethiopian diaspora.

1. Introduction

Ethiopia, located in the Horn of Africa and having more than 110 million populations, aspires to become a middle-income country by 2022. To realize its aspiration and ensure sustainable socio-economic growth and development, the government has formulated and put into practice various development programs including improving higher education sector.

In Ethiopia, higher education counts only 70 years with the establishment of Haile Selassie I University College in 1950. However, the last two decades brought significant expansion in the sector, and currently, there are 51 public and 4 private universities. The total number of academic staff at the 51 public universities reaches 39,392 with Bachelor: Masters: PhD ratio of 20: 67: 13. Of these public universities, 16 are offering PhD programs. The number of PhD programs reaches 263 and the gross enrollment of students is 4355 (MoSHE, 2020).

However, shortage of highly qualified instructors and researchers remains major problem of Ethiopian HETIs. Quality and relevance of the existing PhD programs, unfair distribution of senior academic staff, infrastructure and facilities are still critical challenges of the sector.

Recognizing these gaps, MoSHE has undertaken reform initiatives. Among the initiatives taken, differentiating the public universities into Research, Applied Sciences, Comprehensive Science and Technology and technical universities is very significant. The differentiation was made based on their institutional capacity, environmental potentials, focus areas and center of excellences, above all to respond to national development priorities of the country. MoSHE has also developed responsive higher education policy and strategy, 10-year perspective and 5-year mid-term plans. To enhance quality, relevance, access and equity in the sector and for successful implementation of the policy, the strategy and the plans, corresponding programs have been developed. In all initiatives taken, collaboration and partnership are emphasized as key strategies. Hence, as special intervention, HCCP project is considered as an important strategic move.

2. Background and Context

2.1. Background

Collaboration is not a new concept in the Ethiopian higher education context, but it is still evolving into a new understanding and broad range of approaches. The collaboration, partnership and networking among HEIs, research institutions and industries are key chapters in higher education platform to boost efficiency of the system. Home-Grown Collaborative PhD Program (HCPP) is one segment of the collaboration in the HE that related to doctoral program in which different HEIs work collaboratively through sharing their

staff, finance, infrastructure and facilities to run the doctoral program. It gives wider opportunity to PhD students to work with supervisors, mentors and peers from different disciplines and institutions

The HCPP focuses on building educational partnerships and may involve varying schemes such as joint PhD, dual PhD, sandwich PhD, collaborative doctoral training degree programs and overseas research fellowships. It is intended primarily to bring locally renowned universities, research institutions, laboratories, and industries into genuine partnership for mutual benefits.

The HCPP will also give students greater access to human, material and financial resources than they would have in a single program. It enables them to acquire relevant research and transferable skills, such as negotiation and adaptability as well as better networking opportunities for future job prospects. The HCPP also leverages the involvement of industry in research and innovation where academic research and industrial production is mutually benefited.

The HCPP benefits both local and international higher learning institutions by advancing their connection and partnership. Moreover, it promotes the institutional visibility through joint peer-reviewed published articles which will also improve the research outputs of both parties. The HCPP also create a platform for both parties to internationalize their PhD programs and research.

2.2. SWOT Analysis

Opportunity:	**Challenges:**
• HE identified as one of the priority areas in "Ethiopia: African Beacon of Prosperity" plan • Government commitment towards strengthening HE relevance and quality • Political commitment • Established Professors council and advisory council in MoSHE • Government initiative for the establishment of infrastructure and facilities for online/ virtual, and e-learning. • Existing experience and growing interest of collaboration and partnership of Ethiopian HEIs with local and international institutions.	• Shortage of finance to cover costs and expenses • Shortage of professors in some areas of specialization • Low digital literacy • Lack of established advanced laboratories and workshops • Weak experience in resource sharing among HEIs • Weak learning management system for online, virtual and e-learning

• Government initiative to differentiate HEIs in terms of their focus areas and center of excellences	
Strength: • Availability of HEIs running PhD programs • Establishment of Ethiopian Professors' council • Increased number of HEIs and research institutions • Having experience of collaboration with local and international institutions in some universities • Leadership commitment	**Weakness:** • Giving more attention to access and less for quality • Slow rate of PhD graduates using existing PhD study programs and delivery schemes • Low intake capacity of HEIs in PhD study programs • Lesser ratio of PhD holding academic staff • Less collaboration and partnership among HEIs • Less internationalization elements in HEIs • Low number of PhD holding instructors • Inadequate quality and relevance of PhD programs • Weak PhD student recruitment and support system

2.3. Rationale for HCPP

Producing quality graduates mainly depends on quality of instructors who predominantly manage teaching-learning and research activities at HEIs. In the higher education land scape, PhD programs fosters the capacity of instructors for independent learning and research undertaking at a higher level. Besides, institutional academic capacity and international competitiveness rest in the hands of quality instructors. MoSHE, therefore, intends to assure the quality of instructors because quality higher education cannot be achieved without quality instructors. This is planned to be maintained through this proposed HCPP which involves rigorous students' recruitment and intensive collaboration. The HCPP will also respond to the following core issues.

- Low number of PhD holding HE instructors
- Low relevance and quality of existing PhD programs and research outputs
- Prolonged duration of existing PhD study
- Brain drain through oversea scholarship
- Very high cost of study abroad
- Shortage of hard currency for study abroad
- High need to build internal capacity of HEIs in terms of infrastructure and facilities
- Low local and international interinstitutional collaboration and partnership

- Building technical capacity of HEIs

2.4. Typology of PhD Study Models

There are various PhD study models internationally. The five most known PhD Study Models are: the traditional PhD, PhD by publication, the taught doctorate, professional a& work-based doctorate, and practice-based doctorate models.

The HCPP uses the Traditional PhD Study Model (Monograph PhD Dissertation) in which PhD student will produce monograph with at least one publication in peer-reviewed scientific journals, indexed by Scopus, Web of science and/or Pub med and at least two publishable manuscripts. Under this model, there shall be three examiners per PhD student from HEIs, research institutions and industries, of which

- one from outside of Ethiopia; and
- two from outside of the host and co-hosting HEIs and

Hence, keeping other graduation requirements constant in the degree awarding institutions, the above points override the existing guidelines and practices of the hosting and co-hosting HEIs under HCPP. Besides, there will be a guideline in evaluation criteria and process for HCPP.

2.5. Review of Local PhD Study Practices

2.5.1. Intake Capacity

The intake capacity of the 8 Research and 2 Science and Technology Universities from a year 2018 to 2020 indicated that the intake capacity efficiency of the institutions is not increasing at rate of national need. This clearly implies the need of special intervention.

Table 1. Trends in PhD Intake Capacity by Research Universities and years

No.	University	Intake capacity by year (PhD Students)		
		2018	2019	2020
1	AAU	887	662	634
2	BDU	148	136	196
3	UoG	94	187	191
4	JU	174	252	185
5	HrU	220	168	195
6	HU	80	48	57
7	AMU	45	52	111
8	MU	157	157	224
9	AASTU	66	37	35
10	ASTU	75	77	82
Subtotal		**1946**	**1776**	**1910**

2.5.2. PhD Programs, Enrolment and Graduates

Table 2. Ten Years Trends of PhD Student Enrolment and Graduation in PhD Programs

No	Years of Study	No. of PhD Programs	Enrolments		Graduates		Remark
			Total	Female (%)	Total	Female (%)	
1	2009/10	25	325	8.0	15	0	
2	2010/11	45	791	5.9	149	12.1	
3	2011/12	59	789	12.5	21	4.8	
4	2012/13	98	1849	17.3	76	9.2	
5	2013/14	133	3165	12.2	115	6.1	
6	2014/15	134	3292	11.2	152	8.6	
7	2015/16	138	3135	12.1	335	6.3	
8	2016/17	196	2725	10.3	273	9.1	
9	2017/18	243	3369	8.7	271	8.1	
10	2018/19	263	3994	8.6	377	6.1	

Source: Mulu Nega (2019). Doctoral Education in Ethiopia: Status, Opportunities and Perils

As indicated in the table 2 above, the gross enrolment and graduation rate is low in the PhD programs. In addition, the share of female students in PhD programs is significantly low. Evidence from different studies and reports show that the following are the major reasons for low enrolment and graduation rate in the PhD programs.

- Lack of adequate infrastructure and facility
- Shortage of financial support
- Inefficient and delayed procurement services
- Inadequate student support system
- Poor PhD students recruitment system
- Poor entry behavior of PhD students
- Lack of PhD students' commitment
- Lack of proper incentive schemes for supervisors
- Additional family responsibilities on female students
- Insufficient support from advisers and less follow up by academic units.

2.5.3. Average Duration of PhD Study

The legislation of most of PhD program offering universities indicate that the duration for PhD study is four years, that can be extended up to six years with the justifiable reasons. However, the survey shows that most students complete their study in five to six years while significant number of PhD students stay in the program up to eight years due to the reasons indicated in section 2.5.2.

2.5.4. Experiences in Collaborative PhD Programs

The existing experience and its growing features of collaborative PhD programs among the Ethiopian HEIs and international institutions is taken as benchmark. The success in terms of sharing human and physical resources, experiences, as well as its immense role in building in home capacity is well considered. Besides, the challenges like lack of adequate students entry behavior, poor students recruitment procedure, inefficient organizational arrangements and management of the collaborations, and failures in proper planning and implementation are lessons taken. The existing partnerships are taken as benchmarks.

These existing partnerships are:

- IUC-VLIR – It is a sandwich PhD program in collaboration among Belgium universities and Ethiopian universities towards PhD Study (JU, AMU and AAU are using this program for PhD study).
- NASCERE: Network for advancement of scientific collaboration in education and research in Ethiopia, KOCK: With Korean University and JUCAN programs are in action with Copenhagen University and Jimma university.
- DAAD – (GIZ-Ethiopia) Home-grown program – This is Home-Grown PhD study program in collaboration with AAU, AASTU, ASTU and BDU.
- SIDA SAREC – This is also sandwich PhD study program among Ethiopian HEIs (AAU, Haramaya) and Swedish Universities (Lund, Uppsala, SLU etc Universities).
- NORAD – This is also project based collaborative PhD study program among Ethiopian HEIs (AAU, Hawassa, BDU, Mekele, etc) and Norwegian Universities.
- MasterCard foundation, Dagu Project and Africa CDC HIE Projects are in operating in University of Gondar.
- VLIR-IUC, COE- Collaboration with Gent university- China, and Norad programs are in function in Bahir-Dar University in training PhD students.

Hence, to scale up the successful existing practices and fill in the missing, MoSHE commits itself to launch this Home-Grown Collaborative PhD Program in national priority areas.

2.6. Expenses to Study Abroad

Ethiopian government has paid a total amount of ETB 382,472,304.90 (USD 10,561,230.70) as a cost of study abroad during 2019/20 academic year. The cost per PhD students for study abroad is indicated in table 3 below for three countries.

Table 3: Cost per PhD Student Studying Abroad

No.	Countries	Duration of study (Average)	Expenditure per student	
			In Birr	In USD
1	India	3.5	1,343, 348	34,444
2	South Africa	4	1,673,627	42,913
3	South Korea	4	3,744,000	96,000

Despite the commitment of the government, the academic staff ratio by qualification level is reached only (bachelor: Masters: PhD) 20:67:13 and not moving as planned.

2.7. Higher Education Institutions Academic Staff

Currently there are 39,392 instructors in higher education institutions, as per the reports from public universities. There is serious shortage of PhD holding instructors as it can be seen from Table 4.

Table 4: Higher Education Institutions Academic Staff Ratio by Qualification Level and Band

Band		Ratio by Band and Level of Qualification (%)		
		Bachelor	Masters	PhD
1	Engineering and Technology	37.5	57.8	4.7
2	Natural and Computational Science	13.3	69.7	17.2
3	Medical and Health Sciences	22	64	14
4	Agriculture	17	69	14
5	Business and Economics	16.8	74	9.2
6	Social sciences and Humanities	14.9	69	16.3
Average		20.25	67.25	12.57

3. Goal and Objectives

3.1. Goals

To produce 5000 PhD graduates by the end of 2025, starting in January 2021, in national priority areas through special intervention, collaboration and implementing the differentiation and to build the capacity of HEIs to improve the quality and relevance in teaching and research outputs and realizing the real internationalization of higher education through strong collaboration and partnership.

3.2. General Objective

The Project mainly aims at establishing long-standing educational collaborations and partnerships among HEIs, research institutes, industry, and other potential partners to ensure quality and relevance in higher education system through HCPP.

3.3. Specific Objectives

The HCPP will have the following specific objectives.

- To produce 5000 PhD graduates by the end of 2025.
- To enhance the capacity of local HEIs in PhD program provisions
- To strengthen teaching, research and community engagement capacity of the Ethiopian HEIs;
- To enhance the quality, relevance, access, and equity of PhD research outputs,
- To strengthen the collaboration and networking among partner HEIs, research institutes, and partners.
- To engage Ethiopian diaspora scholars in teaching, research, and resource mobilization
- To improve the number of PhD holding instructors in HEIs
- To promote internationalization through academic mobility.
- To build the capacity of Ethiopian HEIs by producing competent and capable human resource that fit the national needs.
- To enrich scientific research facilities that can support both research and national development priorities such as Foreign Direct Investments (FDIs).

4. Scope

The HCPP Program mainly focuses on:

- Improving quality and relevance in higher education through ensuring adequately qualified academic staff
- National priority areas, such as agriculture, manufacturing, mining, ICT, and tourism
- Promoting local and international partnership and collaboration in higher education system
- Creating a homegrown platform for doctoral research, training, and service
- Uplifting the quality of doctoral research through collaborative efforts of different partners
- Utilize partnership of HEIs and donor organizations to make resources needed for undertaking high quality PhD Study
- Improved and sustained contribution of Ethiopian diaspora in HEIs
- Enhancing international and national co-authorship of scientific papers in high-ranking journals
- Encouraging innovation of utilizable technologies and patents
- Promote international Higher Education diplomacy.

5. Expected Outcomes

The Home-Grown Collaborative PhD Programs will have the following outcomes.

- Strong and sustainable inter-institutional collaboration and partnership among local and international HEIs
- Increased number of qualified higher education academic staff
- Improved relevance and quality of PhD programs to national priorities
- Improved competence and capability of PhD holder instructors, researchers, and policy analysts.
- Improved quality and relevance in research outputs; and increased number of research outputs
- Improved and sustained engagement of Ethiopian diaspora in HEIs.

6. Existing PhD Programs

The existing PhD programs will be strengthened and continue with the all the necessary supports from MoSHE and respective HEIs.

7. HCPP Priority Areas

The priority areas in HCPP are selected based on national priorities indicated in the national prospective ten-year plan with the intention to integrate sectoral moves with national reform agendas to realize prosperous Ethiopia where it boosts the relevance of the PhD programs. HCPP integrates both teaching, learning and research. On top of this, the HCPP focuses on building capacity of the HE to undertake research and give technical support to the line ministries (industries).

The HCPP priority areas are:

1. Agriculture - focus on agricultural productivity and mechanization
2. Manufacturing – focuses on food, pharmaceuticals, textile, housing and improving production and productivity of existing manufacturing (industries).
3. Mining – focus on making the mining a competent subsector, increasing human resource and technological capabilities through research and trainings, improving traditional mining production and marketing systems, and improving the country's geological information.
4. ICT- focuses on supporting the building of digital economy
5. Tourism – focuses on building the sub sector capacity through research and technology and to enhance its productivity.

Accordingly, the following table indicates the identified PhD programs, the HCPP hosting, co-hosting and collaborating HEIs, and the respective numbers of PhD students to be placed nationally.

Table-5: National Priority Areas, PhD Programs, the HCPP Hosting, cohosting and Collaborating HEIs, and the Respective Numbers of PhD Students

SNo	National Priorities	Selected PhD Programs		Host University	Co-host University	# of PhD Students			Collaborative University
						2021	**2022**	Total	
1	Agriculture	1	Agricultural Machinery Engineering	ASTU	-	20	10	95	AASTU, AAU, Mekele
				-	BDU	20	10		
				-	Haramaya	20	15		
		2	Agricultural Engineering	Hawassa	-	35	30	110	Jimma, Mekele
				-	Haramaya	25	20		
		3	Dairy Science and Technology	Haramaya	-	30	30	60	Hawasa, Jimma, Mekele, BDU
		4	Irrigation Engineering	Arbaminch	-	20	20	95	AAU, Haramaya
					ASTU	15	10		
					BDU	20	10		
		5	Ground water Engineering	Arbaminch	-	30	20	50	AAU, Mekele, Jimma, Hawasa
		6	Food Process Engineering	AASTU	-	20	15	120	Gondar, Jimma, Wollo, ASTU, AAU, DDU, Hawasa
					BDU	25	20		
					AAU	25	15		
		7	Animal Biotechnology	ASTU	-	15	10	98	ASTU, Mekele, Haramaya, Wolkite, Ambo
				-	AAU,	10	7		
				-	BDU,	10	8		
				-	Gondar,	10	10		
				-	Hawassa	10	8		
		8	Plant Biotechnology	BDU	-	20	20	110	Hawasa, Jimma, Dilla, wolkite, Ambo
				-	AAU	15	20		
				-	Gondar	15	20		
		9	Industrial Biotechnology	AASTU	-	20	15	65	AAU, ASTU
				-	BDU	15	15		
		10	Plant Breeding	Haramaya	-	30	25	135	

				-	BDU	20	20		ASTU, Gondar, Mekele, Wollega, Ambo, DMU, WSU
				-	Jimma	20	20		
		11	Animal Breeding and Genetics	Haramaya	-	30	20	90	Haramaya, Hawasa, Jima, Ambo
				-	BDU	20	20		
		12	Plant Pathology	Haramaya	-	25	20	90	Hawassa, BDU, Mekele
				-	Jimma	25	20		
		13	Agri Business Management (New)	Haramaya	-	25	20	90	Jima, Mekele, BDU
				-	Hawasa	20	25		
		14	Land policy and governance	BDU	-	20	15	35	Jimma, Mekele
		15	Applied Soil Sciences	Haramaya	-	30	25	100	Jimma, mekele, Wolkite, Medawolabu
					BDU	25	20		
		16	Dryland Ecology and Resources	Mekele	-	30	20	50	Gondar, BDU, Jigjiga, Samara
		17	Agricultural Entomology	Haramaya	-	30	20	90	Gondar, Mekele, Jimma , BDU
					AAU	20	20		
		18	Agronomy	Jima	-	30	20	140	Mekele, Dilla, Hawasa, Gondar, DMU, Ambo
					Haramaya	25	25		
					BDU	20	20		
		19	Post-harvest Technology	BDU		20	15	60	Hawassa
					Jimma	15	10		
		20	Aquatic Sciences, Fisheries and Aquaculture	Hawassa		30	20	85	Arbaminch, Haramaya, BDU, Mekele, Assossa, Ambo
					Jimma	20	15		
		21	Human Nutrition	Jimma	-	30	20	100	AAU
				-	Hawassa	30	20		
		22	Rural Development	Haramaya	-	30	20	120	Hawasa, Jima, Mekele, BDU
					AAU	20	15		
					BDU	20	15		
		23	Horticulture	Hawassa	-	30	20	160	

					BDU,	20	15		AMU, Wollayita (WSU), Jima, Mekele
					Jimma,	20	15		
					Haramaya	20	20		
2	Manufacturing	1	Manufacturing Engineering	ASTU	AASTU	27	29	56	AAU, BDU
		2	Mechanical Design Engineering	AAU	-	30	20	125	Arbaminch,, Hawassa
				-	Jimma	25	20		
				-	AASTU	15	15		
		3	Industrial Engineering	AAU	-	20	15	100	ASTU, AASTU,
				-	BDU,	20	15		
				-	Mekele	20	10		
		4	Petroleum Engineering (New)	BDU	-	30	30	60	Jigjiga, Samara, Bule Hora, Gambela
		5	Process Engineering	AAU	-	25	20	85	Jima, Gondar, AMU, Hawassa, AASTU
					BDU	20	20		
		6	Textile Engineering	BDU	-	30	20	50	JU, HU, DDU, WU,
		7	Mechatronics Engineering	AASTU(New)	-	15	10	50	ASTU, HU
				-	AAU	15	10		
		8	Power Engineering	AAU	-	20	15	80	HU
				-	AASTU	10	10		
				-	ASTU	15	10		
		9	Renewable Energy Engineering	BDU	-	20	10	70	AMU, AAU
				-	AASTU	10	10		
				-	Jimma	10	10		
		10	Polymer Engineering	BDU	-	15	10	50	AAU, AASTU, ASTU
				-	Jimma	15	10		
		11	Leather Engineering (New)	BDU	-	20	15	60	AAU,
				-	AASTU	15	10		
		12	Ceramics Engineering	Jimma	-	15	10	43	MU,

				-	AASTU	10	8		
		13	Thermal Engineering	AAU	-	15	10	85	AMU, JU
				-	BDU	10	10		
				-	ASTU	10	10		
				-	AASTU	10	10		
		14	Urban and Regional Planning	AAU	ASTU	30	30	60	HU, MU, JU
		15	Geotechnical Engineering	AAU	AASTU, Mekele	30	30	60	ASTU, Jima,
		16	Water Supply and Sanitary Engineering (New)	ASTU	-	10	10	88	AMU, AAU, HU
				-	AASTU,	10	8		
				-	Jimma	15	15		
				-	Arbaminch,	10	10		
		17	Railway Engineering	AAU	-	10	10	20	AASTU, AMU
		18	Road and Transport Engineering	AASTU	-	20	15	60	AAU, ASTU
				-	BDU	15	10		
		19	Management (HRM, Business, Marketing)	AAU		20	10	120	DBU, HrU, AMU, UoG, JU, MU, MwU, AU, WkU
				-	Jimma	20	10		
				-	Hawasa	20	10		
				-	BDU	20	10		
		20	Industrial Economics	Jimma	-	30	20	50	AAU, HU, MU
		21	Industrial Management (New)	AASTU	-	20	10	50	HU, AMU,
				-	AAU	10	10		
		22	Logistics and Supply Chain Management	AAU	-	30	20	90	Gondar, JU, MU,
				-	BDU	20	20		
		23	Space Science	BDU	-	10	10	80	ASTU, AMU,
				-	ASTU,	10	10		
				-	AASTU,	10	10		
				-	AAU	10	10		
		24		AAU	-	15	10	50	HrU, AMU, ASTU

			Nuclear Science (Energy, , Medicine)(New)	-	AASTU,	15	10		
		25	Astronomy and space physics	AAU	-	25	20	45	ASTU, AASTU, MU,
		26	STEAM Education	BDU	-	15	15	60	AxU, WU, AAU, MU, HU, JU
				-	AAU	15	15		
3	Mining	1	Geological Engineering	AAU	-	20	10	90	AAU, Axum, BDU
				-	Gondar	20	10		
				-	Mekele	20	10		
		2	Mining Engineering (New)	AASTU	-	10	10	20	AAU, Mekele
		3	Geophysics	Gondar		30	20	85	BDU,
				-	AAU	20	15		
		4	Geochemistry	AAU	-	15	25	60	ASTU
				-	AASTU	10	10		
		5	Structural Geology and Tectonics	AASTU	-	24	32	56	AAU, ASTU
		6	Hydrogeology	Mekele	AASTU,	30	25	55	AAU, JU, AMU, AAU, BDU
4	ICT	1	Computer Science and Engineering	ASTU	-	20	10	95	HU, JU
				-	ASTU	10	10		
				-	AAU	15	10		
				-	BDU	10	10		
		2	Communication Engineering	BDU	-	20	10	100	JU, HU
				-	AAU	20	10		
				-	AASTU,	10	10		
				-	ASTU	10	10		
		3	Control and Instrumentation Engineering	AAU	-	20	20	75	ASTU, BDU, Jimma
				-	AASTU	20	15		
		4	Software Engineering	Mekele	-	30	25	100	AAU, ASTU, JU, BDU, UoG
				-	AASTU	20	25		

		5	Cyber Security	AAU	-	20	15	60	ASTU, JU, BDU, HU, AMU
				-	AASTU	15	10		
		6	Big Data (New)	AASTU	-	10	10	45	UoG, AMU, BDU, AAU, UoG
				-	ASTU	10	15		
		7	Artificial Intelligence and Robotics (New)	AASTU	-	15	10	55	AMU, Jimma
				-	AAU	20	10		
		8	Information System	AAU	-	25	30	55	ASTU, AASTU, JU, UoG
		9	Technology and Innovation Management	ASTU	-	30	20	50	AASTU, AAU
5	Tourism	1	Tourism and Heritage Management	UoG	-	25	30	110	AAU, Mekele, Wollo, Axum, Hawasa
				-	BDU	25	30		
		2	Eco-Tourism	JU	-	20	15	35	UoG, BDU, WU, MU, SU, JJU, AMU
		3	Peace and security	AAU	-	14	7	21	JU, MU, HU, HrU
Grand Total						**2889**	**2208**	**5096**	

Summery

S. No	Priority Areas	No of Programs	No of Students	% of Sts	2021	2022
1	Agriculture	23	2165	42.5	1220	946
2	Manufacturing	26	1746	34.3	996	750
3	Mining	6	380	7.5	208	172
4	ICT	9	680	13.3	388	292
5	Tourism	3	125	2.5	77	48
Total		67	5096	100.0	2889	2208

Note:

The hosting and co-hosting HEIs will map and collaborate with different international institutions in the world to share professors, laboratories & workshops, and other facilities. HCPP coordination office at MoSHE will facilitate such collaboration nationally by engaging all stakeholders.

8. Project Implementation Framework

8.1. Project Duration, Graduation and Sustainability

The duration of the project shall be five years, 2021 to 2025. The first intake will be in February 2021. The programs will be later supported by host and co-host institutions and remain sustainable.

8.2. PhD Students and Professors Placement

The PhD students shall be placed nationally based on the students' recruitment criteria set and by the order of the results they scored

The professors working in HEIs will be placed nationally to hosting and co-hosting HEIs. The placement modality will be temporal whereby professors in a given institution are placed for a defined period of time to teach a course, present seminar, supervise PhD students, examine PhD dissertations, etc. Adequate facility and compensation will be provided to guest professors placed for this mission.

8.3. HCPP Delivery Framework

The HCPP delivery mainly uses the Traditional PhD Study Model (Monograph PhD dissertation) under context of sharing resources, diverse instructional delivery modes including virtual platform and face to face and blended/hybrid, depending on the inter-institutional agreements that are specific to selected services, infrastructures, and facilities.

8.4. Hosting and Collaborating Institutions

The 8-research and the two science and technology universities are mainly hosting and co-hosting universities but at a time they may act as a collaborative university in fields they are less competent. Other local and international HEIs, research institutions and industries will be collaborating institutions.

8.5. Multidisciplinary/ Transdisciplinary Approaches

Advisership, mentorship, supervision, and examination of HCPPs follows multidisciplinary group & peer approach to support, teach and train PhD students using professors across the country through national placement as well from international collaborating institutions and industries. Advisership and examination should be handled by staff with the rank of associate professor and above.

8.6. . PhD Degree Award

Joint PhD Degree shall be awarded by hosting, co-hosting, and collaborating HEIs as the case may be. The Dual PhD Degree shall be awarded among Ethiopian and overseas HEIs; not among Ethiopian HEIS only.

9. HCPP Implementation Strategy

9.1. Reviewing the Existing and Developing New Curricula

The existing PhD curricula under the national priority areas will be reviewed by the hosting, co-hosting, and collaborating HEIs where the engagement of stakeholders shall be assured by the institutions. MoSHE will facilitate the review and development process. In the process, experiences, approaches, and other resources will be shared from local and international senior HEIs.

9.2. National Human Resource Mobilization

The professors and the associate professors will be placed to hosting and co-hosting HEIs as per the proclamation 1152/2019.

Table 6: Number of professors in the 8-research Universities, AASTU and ASTU (Summery).

S.No	Academic Rank	With PhD	Without PhD	Total	Remark
1.	Full professor	258	24	282	
2.	Associate professor	796	138	934	
3.	Assistant Professor	1626	Not Applicable	1626	
Grand Total		2680	162	2842	

Table 7: Professors with 8-research, AASTU, ASTU; and expatriates (detail)

S.No	Universities	Professor		Associate Professors		Assistant Professor	Expatriates
		with PhD	without PhD	with PhD	without PhD	with PhD	
1	AASTU	4	-	17	-	103	4 Profs. with PhD 11 Assoc. Prof. with PhD 4 Ass. Prof. with PhD
2	ASTU	13	-	64	-	-	12 Profs. with PhD 26 Assoc. Prof. with PhD
3	AAU	122	9	262	56	599	9 Emeritus with PhD 18 Prof. with PhD 4 Adjuncts 1 Emeritus without PhD 8 Prof. without PhD 22 Assoc. Prof with PhD 1 Assoc. Prof. without PhD 23Ass. Prof. with PhD
4	AMU	15	10	45	-	214	13 Prof. with PhD 24 Assoc. Prof. with PhD 21Ass. Prof. with PhD
5	BDU	17	-	155	-	407	5 Prof. with PhD

							4 Ass. Prof. with PhD
6	HU	24	3	69	14	-	5 Prof. with PhD 1 Prof. without PhD 4 Assoc. Prof. with PhD
7	HrM	17	-	53	-	128	4 Prof. with PhD 9 Assoc. Prof. with PhD 26 Ass. Prof. with PhD
8	JU	24	-	52	29	-	6 Prof. with PhD 2 Honorary Staff 4 Assoc. Prof. with PhD 2 Assoc. Prof. without PhD
9	MU	13	2	-	-	-	-
10	UoG	11	-	69	40	174	-
Total		258	24	796	138	1625	

Besides, there are professors in other HEIs, research institutions, and in line ministries and the diaspora. Therefore, the national placement to the PhD program in hosting HEIs includes all of them based on their area of specialization and research focus.

9.3. Preparing Adequate Accommodation

Accommodation will be made available to the nationally placed professors and PhD students. The accommodation shall consist of space for cooking, bathrooms, and rest rooms (common or private), bedroom and area for reading. It should be also furnished with household utensils and internet facilities. Expenses related to the required logistics in the academic mobility will be covered by the host and co-host HEIs. Universities may provide/offer accommodation that caters for students' family. The students will pay for the accommodation at subsidized rate.

9.4. PhD Student Recruitment

9.4.1. Eligibility Criteria (must meet)

S.No	Criterion to be considered	Description		
1	Academic achievement	CGPA	UG	• Male – CGPA 2.75 • Female -CGPA 2.5
			PG	• Male – CGPA 3.20 • Female- CGPA 3.00
		Masters, Thesis/project		• Male - very good and above • Females -good and above
2	Maximum age for	Male		40 years old
		Female		45 years old
3	Fitness to curriculum requirement			

4	Recommendation letter	The PhD candidate must submit at least one recommendation letters from home institution and two from previous instructors (supervisors)
5	Commitment letter	The PhD candidate must submit signed individual commitment letter following the format developed.

9.4.2. Selection Criteria

PhD students will be recruited based on staff development plan of the HEIs through official call and a rigorous competitive recruitment process. Additional points can be added by host and co-host HEIs institutions if the nature of the program urges them to do so.

Table 10: Selection Criteria

S.No	Selection Criterion to be considered	Description			Point (%)	
1	Academic achievement	CGPA	UG	• Male – CGPA 2.75 • Female - CGPA 2.5	10	
			PG	• Male – CGPA 3.20 • Female- CGPA 3.00	10	
1.	Entrance exam	There will be standard entrance exam that will be prepared nationally and administered at host HEIs per every program. The PhD candidates must sit for and pass the exam. The exam will be prepared centrally using the test center in AAU.			50	
2.	Publication	Based on MoSHE Journal reputability criteria		▪ two and above article in indexed & peer reviewed journal publication = 10	10	10
				▪ one article in indexed & peer reviewed journal publication	5	
				▪ one paper in a proceeding	2.5	
				▪ two and more paper in proceedings	5	
3.	Face-to-face synopsis presentation	The student shall submit and present 3-5 pages of synopsis (concept paper) that show his/her research interest area. The content/structure of the concept note shall include background, research hypotheses/			15	

		objectives and brief methodology. Feasible technologies can be used (e.g., Zoom, Teams up…)	
4.	Affirmative action	to support female and people with disabilities applicants	5
Pass mark (cut point)			60

Note:

- Female candidates, student with disabilities and students from emerging regions will earn additional 5 points as affirmative action.
- The relative point value for CGPA will be calculated proportionally out of 4.0.

9.5. Using Different PhD Study Models

There is no single fit for all study models identified in HCPP. As described in the background and context, the five PhD study models will be used exclusively or integrally based on the nature of the study programs, resources available, program purpose etc, which brings different study time duration per programs under the framework.

9.6. Sharing Facilities and Inputs

HCPP as a special intervention may require new or additional facilities and inputs in the host HEIs, whereas the required inputs and facilities are already established and available in other local and/or international HEIs, research institutions and industries. Here, collaboration, networking and strong partnership schemes among those institutions are vital to make the HCPP productive. So that, the following collaborative platforms can be used in HCPP:

9.6.1. Joint PhD Programs (JPP)

There will be JPP that involve two or more local and/or international degree-awarding institutions collaborate to deliver PhD program(s) where the PhD students get learning access using the resources at both institutions working jointly. The time duration expected from the student or the professor to stay and type of course, laboratory or workshop work will be defined by host or co-host HEIs as part of inter-institutional collaboration agreement.

9.6.2. Dual PhD Program (DPP)

In DDP any of two HEIs (local and international) shall have agreement to give dual PhD program by sharing the curriculum, the human resource, laboratories & workshops, and all other learning infrastructure

and facilities that they do have exclusively to grant doctoral degree using one doctoral dissertation to fulfil the requirements for a doctorate in two different HEIs in the same country or in two different countries.

9.6.3. Sandwich PhD Program

The candidates in host institution shall be placed to collaborating institution(s) to take course(s) or to use learning and or research infrastructure and facility in the collaborating institution for certain period. The credit earned will be transferred based on agreement and the PhD candidate will be co-supervised by host PhD supervisor(s). The collaborating institution can be local and or international HEIs, research institute or industry.

9.6.4. Overseas Research Fellowship (ORF)

It (also called Overseas Research Scholarships (ORS) is an international postgraduate award in which selected PhD students undertake their research work at the HEIs. Hence, MoSHE and HEIs look for international oversea research fellowships.

9.6.5. Multi-partner Collaboration

This is to indicate partnership and networking among research institutions, HEIs and Industry. Some industries may need research on their firms related to service quality, inputs, production process, marketing, or organizational management. Thus, PhD candidates will use the resources in the industry and in the HEIs collaboratively while working for the PhD degree award.

9.6.6. Using Diverse Delivery Approaches to Increase Intake Capacity of Hosting HIEs

There can be different delivery approaches depending on the nature the PhD programs that the institutions can use to boost their intake capacity. Among them flexible PhD program delivery for selected programs can be the one.

This includes:

a. **Blended learning type** that employs online/virtual, and face-to-face delivery in which:

- Year-I is allocated for course work and research concept development through online, virtual and/or face-to-face mode of delivery with close support from the advisers and mentors while the candidates are at their host, co-host and/or home university.
- The PhD candidate shall sit for comprehensive exam at the end of first year.
- Year II semester I for PhD dissertation proposal preparation and defense.
- Year II semester II to year IV for PhD research work, writing, and dissertation defense.

The PhD candidate enrolled in this modality shall be at host, co-host or home university taking 3-4 Cr Hr teaching load during the study period.

b. Using online or virtual mode of delivery for course work and proposal preparation exclusively.

The course work shall be provided using technology assisted methods to meet with physical space, faculty resources, and class size limitations. This includes virtual learning and online learning.

c. Decrease other workload from professors and to save more of their time for HCPP

The PhD candidates shall supervise and mentor master's students and shall give course(s) not more than 4 cr. hrs. per semester to undergraduate students (where applicable) solely or in the co-teaching mode in the institutions.

d. Introducing multidisciplinary faculty group adviserships and mentorship scheme

This includes professors from different disciplines make a group to advise and mentor different PhD candidates.

e. Strengthening multidisciplinary doctorial committee (doctoral degree board) approach

The evaluating committee shall include researchers from research institutes and industries in addition to area specialists (university professors). This will help to improve quality and to share experience and perspectives outside of the HEIs and pools additional human resources. It also reduces the load of the professors. The committee member can be from different disciplines. The maximum number of the committee should not exceed five members. The minimum academic rank of chairperson of the evaluating committee should be associate professor and above.

f. Employing Peer Mentorship Scheme

There will be junior-senior PhD students' mentorship network. There shall be selected, and registered peer mentors based on their academic achievements. The peer mentors shall be given a training for peer mentorship. There shall be PhD mentorship center:

- Having prepared standard necessary learning materials and mentoring videos that have psychological and technical contents, experience of seniors & faculty members.
- Having service facilities and resources to equip the PhD candidates with necessary skills
- Providing information service to PhD candidates on the behalf of the professors
- Using institutional Mentor Connect Portal, which provides an outlet for asking mentoring questions in the interdisciplinary forum for remote mentoring service. The questions are forwarded to Mentoring

Advisory Board, which is comprised of multidisciplinary faculties in charge of PhD mentorship service. Such portal site shall be strengthened, and digital resources shall be developed to support the mentoring across the programs.

g. Follow up of PhD Student's Progression:

There will be an evaluating committee for every PhD student comprising three senior professors to be assigned by the respective hosting HEIs' academic unit in consultation with Institutional coordination office.

Duties and responsibilities of the evaluating committee:

- Follow up and evaluate the progress of the PhD student every six months.
- Provide written feedback to the student, the adviser, the academic unit, and the institutional coordination office on the students progress and next actions
- Decide on the continuation of the PhD work depending on the performance of the PhD student.
- If the student fails to perform to the requirement of the study program, the committee may propose termination of the study to the academic unit.
- Conduct mock defense, evaluate, and decide the readiness of the dissertation for public defense (viva voice).

Student's progress evaluation yardsticks:

- **Students PhD candidacy** will be ensured by comprehensive exam. Student who fails to pass the exam shall repeat for a maximum of two times in an interval of a month.
- The student must submit written progress report to:
    - The adviser(s) every month and the adviser(s) evaluate(s) the report and provides written feedback to the student with suggestions on future activities.
    - The evaluating committee at every six months. The committee evaluates the report and provides written feedback to the student, advisers and academic unit with suggestions on future activities.

10. Project Coordination

10.1. Establishing National Coordination Office at MoSHE

There shall be established national Home-Grown Collaborative PhD Programme (HCPP) coordination project office at MoSHE. The office shall have project manager and relevant senior experts as well as full office facilities, two vehicles for field supervision and access to coordination offices in the 10 HCPP

hosting HEIs. The national office name shall be Ethiopia Higher Education Quality and Relevance Resources Mobilization and Funding Office (QRF).

The key functions of national project coordination office include:

- Project management at national level
- Team coordination and management
- Technical supervision, capacity development and regular monitoring in the field
- Recruiting national/international staff/professors for the project
- Manage potential disputes
- Mobilize resources
- Student recruitment and placement
- Follow up timely completion of PhD students Projects
- Project quality assurance
- Promotion of strategic partnerships and resource mobilization
- Ensure stakeholders engagement
- Donor liaison and coordination
- Overlook resource and funding at HEIs
- Overlook the whole performance of HCCP in the host, co-host and collaborating.
- Reporting

There will be national HCPP Steering and technical committees. The steering committee includes State Minister in charge of higher education, Research Director General, Higher Education Academic Affair Director General and Higher Education Reform & Administrative Affairs Director General and a representative selected by the all host and cohost university presidents. The key functions of the taskforce will be guiding, monitoring, and evaluating the overall project and national project coordination office.

The technical committee includes the academic vice presidents, APD, registrar and PGD of the hosting and co-hosting HEIs and director general for higher education academic affairs.

10.2. Establishing Institutional Coordination Office at 10 Hosting HEIs

There will be HCPP coordination offices in the 10-local hosting HEIs. The offices shall have project coordinator, one senior expert and full office facilities, one vehicle for field supervision and access to college/faculty dean offices having the HCPP. The coordination office will be accountable to Office of the

Vice-President for Academic Affairs and placed under the Postgraduate Program Directorate/School of Graduate Studies for day-to-day engagement. At the end of the project, the program will be transferred to the hosting and co-hosting HEIs.

The key functions of institutional project coordination office include:

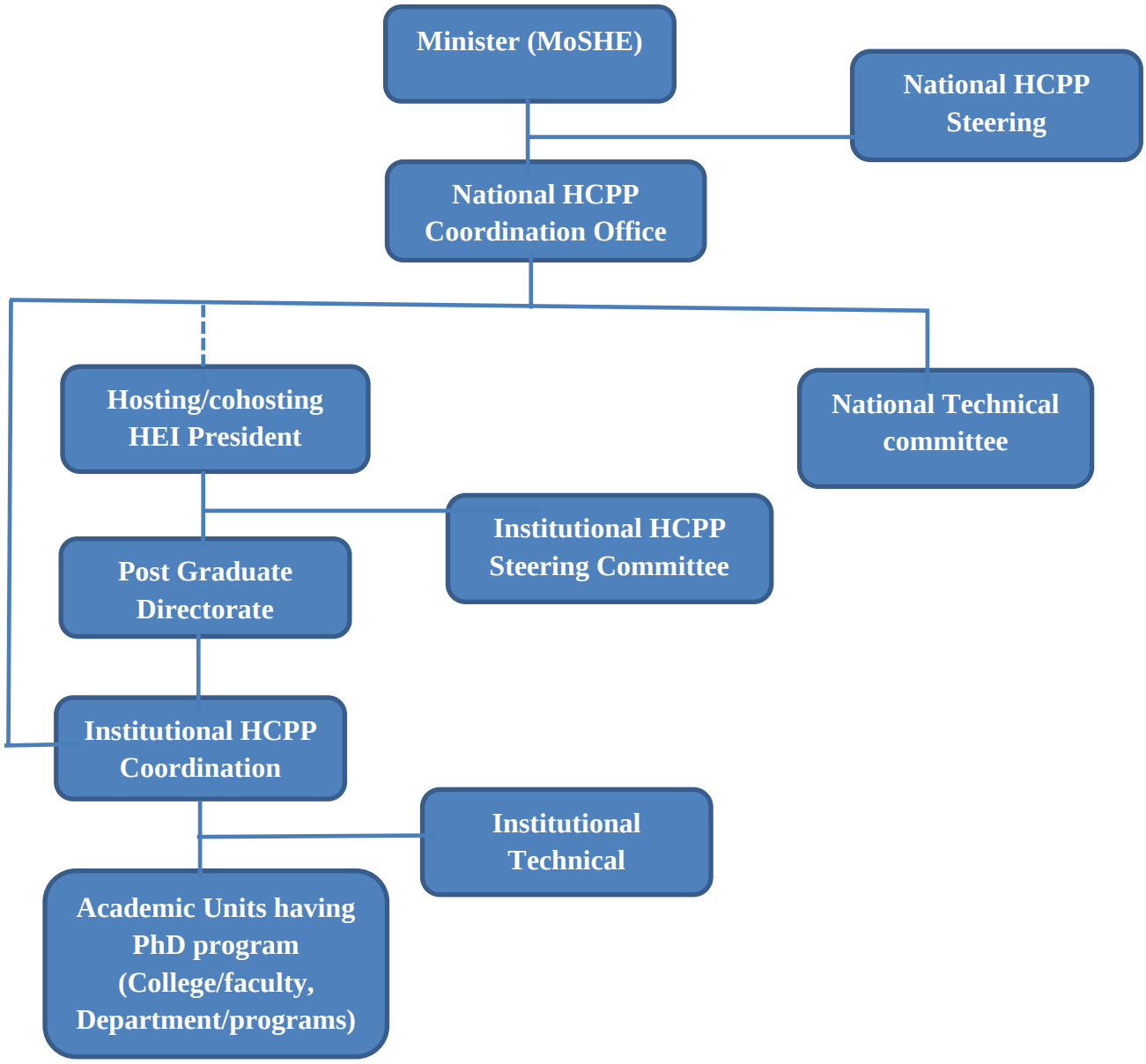
- Project management
- Follow up of timely completion of PhD students
- Recruitment and management of internal and external examiners
- Arrangement and management of open defense/viva voce session
- Follow up of declaration of results and approval by the senate
- Team coordination and management
- Technical supervision, capacity development and monitoring
- Project quality assurance
- Plan and coordinate curriculum development and review by academic units
- Ensure stakeholders engagement
- Reporting

There will be institutional HCPP Steering committee that include academic vice president, Postgraduate Program Directorate/School of Graduate Studies, research vice president, research director, academic programs director, quality assurance director and college or faculty deans having HCPP. The key functions of the task force shall be guiding, monitoring, and evaluating the overall project and institutional project coordination office.

10.3. Establishing Ethiopia Higher Education Relevance and Quality Fund (RQF)

There will be established Ethiopia Higher Education Relevance and Quality Fund (RQF) office at MoSHE which will have human resources with high leadership and expertise competence, adequate office facility, and legal platform to promote its functions. The office mobilizes fund for HCPP, Ethiopian government scholarship, student loan etc. The office follows organized and all rounded fund mobilization strategies through establishment of the platform for active engagements of partners, donors, and stakeholders. Overall, the fund mobilization and utilization will through the office focus on enhancement of relevance and quality in higher education.

Organogram of HCPP coordination.



10.4. Development of Research Thematic Areas

The national steering committee together with the coordination office shall develop national research thematic area for HCPP within the framework of the national priority areas indicated in this document.

10.5. Facilitating the Implementation

Standard Operation Procedures (SOP) will be developed by host and co-host institutions in consultation with coordination office to run the program smoothly.

11. Resource Mobilization Strategy

11.1. Human Resources Mobilization

11.1.1. Joint Appointment

There are about 1054 associate and full professors in the 10-universities. Among them 248 full professors who are members of recently established Ethiopian Professors Council. In addition, there are Ethiopian diaspora full professors living across the world. Moreover, there are professors working in different research institutions, industries, NGOs, line ministries and other organizations. Therefore, there will be a platform to be formed and legal framework to be set for formal call to joint appointment to take part in HCPP by providing courses & seminars and advising & mentoring PhD candidates either virtually or face to face.

The multidisciplinary education and training delivery approach will be promoted for the efficient use of the professors under the joint appointment framework. Professors and or/associate professors will be mobilized to the institutes where the programs are hosted or co-hosted as per the proclamation No 1152/2019.

11.1.2. Inter-institutional Partnership

The hosting HEIs will have inter-institutional partnership agreement with local and international HEIs in different parts of the world (for example Europe, USA, Canada, Africa, Asia, Australia, Japan, etc) to have the professors from those HEIs online, virtually and face to face depending on the nature of the program and the required service.

11.1.3. Exchange Programs

Various staff-staff and staff-students exchange agreements will be affected to mobilize required human resource for efficient and effective implementation of HCPP. The PhD candidates and professors will be given required logistics to move to other HEI under this program. Besides, there will be maximum possible local movement in search of relevant professors and technical support that is associated to specific service for certain period of time during the HCPP.

11.2. Financial Resources Mobilization

11.2.1. Joint Research

All research under the HCPP program preferably be conducted jointly with local and international institutions. The local institution includes but not limited to, industries, line ministries, private companies,

private universities, and research institutes where the major of the finance required to run the research will be covered by them. Such approach not only promotes financial resource mobilization but also improves research relevance and quality.

In addition, well-developed research proposals will be submitted for funding and technical assistance to the regional, and continental partners that focus on common cross border issues. There shall be inter-institutional agreement that have on based on mutual benefits.

Inter-institutional partnership with HEIs across the globe shall be promoted and there will be formal submission of proposals to conduct joint research.

11.2.2. Fund Rising Event - Mobilizing National & International Funding Agencies

There will be national forum with partners, donors, and stakeholders including embassies to encourage their engagement in the HCPP. Based on mapping of their respective interest/needs close communications will be made.

11.2.3. Government Capital Budget Allocation

The Ethiopian government shall allocate capital budget for HCPP implementation. Besides, the allocation of budget to public HEIs will be reviewed and aligned with HCPP implementation as per the differentiation.

11.3. Material Resources Mobilization

An inventory and mapping of material resources related to physical capital that include instruments, kits, workshops, laboratories, and related facilities and others shall be done. Missing material resources will be fulfilled through procurement, donation, renovation, collaborative use, and other innovative techniques.

11.3.1. Available Instrument /Equipment Maintenance and Renovation

There are several equipment existing in nearly all the HEI, and research centers which are not functional. Therefore, pooling maintenance engineers or outscoring this function to private sectors to make them operational is will be done with special focus by every HEIs.

11.3.2. Academic Mobility

In the context where there is a physical resource shortage, the PhD students and professors will move to the institutions that have the facilities. The project office in MoSHE will conduct national and international mapping of learning and research instruments, kits, workshops, laboratories, and facilities to make the collaboration efficient. Hence, the academic mobility includes moving to another local or international institution to study or teach/train for a specified time.

The same can be achieved through well facilitated local and international **exchange programs** (student-student, staff – staff, student-staff). The partnership with international HEIs across the globe will be strengthened to effect academic mobility and exchange programs.

11.3.3. Inter-institutional Agreements

There are different industries, private companies, research institutions and those having infrastructure and facilities that can be used for HCPP. There will be inter-institutional agreement for the shared use of infrastructure and facilities.

12. HCPP Management Strategy

In the context of HCPP, the project leadership will comprise scanning, focusing, aligning, mobilizing, and inspiring the whole setting of the project. In line with this planning, organizing, implementing, monitoring, and evaluating the project input, process and output is one of the key moves to keep the project over the intended track. Besides, cultivating accountability, engaging stakeholders, and setting shared directions is important milestones for the project sustainability and institutionalization. In this line, the HCPP project management strategy mainly follows the five process groups — initiating, planning, executing, monitoring & controlling, and closing, among project management approaches.

12.1. Initiating the Project

Project initiations document(s) will be developed, approved, and communicated to partners, donors, and stakeholders. The developed HCPP complete proposal with necessary templates will be reviewed by senior experts and HEIs top leaders. The enriched document will be approved by MoSHE and well communicated. There will be complete mapping of stakeholders, partners, and donors as well as establishment of platform for their active engagement.

12.2. Management Plan at Each HCPP Program Level and Approval

The detail plan will be developed at the hosting 10 HEIs, collaborating institutions and every program levels. That includes developing management plan of schedule, human resource, procurement, quality assurance, risk, finance, change and academic progress every semester. The plan will be approved by the taskforce.

12.3. Proper Resource Allocation, Coordination and Management

The human, financial and material resources available nationally, institutionally and at program levels shall be allocated based on context of HCPP through resource mapping under home, host and collaborative HEIs

in search for effective course delivery, research advisership, research infrastructure & facilities, and senior professors. The candidates may stay at home HEI or move to host or collaborate HEIs where senior professors or better laboratory & workshop facilities are available. This mapping shall be completed at institutional and program level with binding inter-institutional agreement. There shall be legal framework (guideline) to promote mandatory collaboration for efficient use of all required resources among HEIs for the success of HCPP.

13. Monitoring and Evaluation Strategy

13.1. Developing Supervision and Evaluation Manual

The hosting 10 HEIs will submit their five-year HCPP implementation plan to national HCPP coordination office. The office shall prepare key performance indicators (KPIs) based on national HCPP project implementation framework and the plan from the institution. Field supervision and evaluation manual that comprises the KPIs shall be developed, reviewed, and approved by national HCPP coordination office.

13.2. Developing Automated HCPP Management Information System (HCMIS)

There shall be automated national HCPP management information system (HCMIS). This platform shall be used to share, document, and monitor the project activities; as well as to manage feedback. This an integrated management information system for HCPP will covers the entire life cycle of the students from admissions to graduation/alumni. A student's admissions, registration, financial aid, curriculum planning, advising, professors placement management, LMS, plagiarism system, assignment, journals subscriptions, library management, dormitory, eligibility, results, mark sheets and degree certificates shall be available on the system.

13.3. Evaluating Report

The project host universities shall submit their reports quarterly to the national HCPP coordination office. The office shall organize the report and submit it to the taskforce while the overall evaluation of the project shall be done in the presence of the minister, the steering committee, and the 8-research HEIs, AASTU and ASTU.

13.4. Field Supervision

In every quarter, there shall be field supervision to the 10 HEIs. The report shall be generated based on the field supervision and evaluation manual which shall be evaluated by MoSHE.

14. Accountability Framework

Under HCPP context, accountability refers to the obligation: (i) to demonstrate that HCPP has been efficiently and effectively implemented in accordance with agreed rules and standards and (ii) to report fairly and accurately on performance results as per the mandated roles and/or plans.

The accountability system is to support increased transparency, clarity and alignment of all HCPP activities, in accordance with the guidance provided by policy & strategies, programs, legal frameworks, and standards. This accountability framework is aligned with the MoSHE and HEIs plans. Accountability activities cover all HCPP activities in all locations and include monitoring and evaluation schedule. The results of these accountability activities indicate the extent to which the objectives are being met and how they will be used to ensure continuous improvement throughout PhD programs in higher education system.

14.1. Guiding Principles of Accountability

- Clarity of duty and responsibility – this is so important to deliver respective obligation
- Formal and consistent delegation of authority - Authorities, responsibilities and accountabilities are clearly defined, formally delegated and consistent. This includes ensuring segregation of duties so that key duties and responsibilities in authorizing, processing, recording, and reviewing official transactions are segregated among staff.
- Risk and cost-benefit considerations in decision-making. This refers that in arriving at decisions, the risks, costs and benefits of the available options be duly considered.
- Reliable and verifiable performance monitoring and reporting - responsible parties must disclose their performance through adequate, regular reporting on results, with timely accounts and reliable financial and substantive reports. Documentation must be clear and readily verifiable.
- Highest standards of personal integrity (self-attestation and ethical conduct)

14.2. Duties and Responsibilities

Without compromising the duties and responsibilities given in active legal frameworks, the main actors in HCPP will have the following duties and responsibilities from which their respective accountability can be derived.

14.2.1. MoSHE:

a. Developing national HHCPP implementation proposal
b. Developing legal frameworks required

c. Conducting national PhD study and research resource mapping and facilitate the collaborative usage
d. Establishing national HCPP coordination office
e. Preparing national entrance exam
f. Place the professors nationally
g. Facilitating HCPP implementation nationally
h. Establishing higher education and training quality and relevance fund office
i. Mobilizing resources
    i. Establishing platform for diaspora scholars to get engaged in HCPP
    ii. Lobbying local and international funding agencies
    iii. Organizing funding events
j. Conducting monitoring and evaluation
k. Taking corrective actions

14.2.2. Hosting and co-hosting HEIs:

a. Review the existing PhD programs curricula and developing new curriculum based on national priority areas
b. Administering PhD candidates entrance exam
c. Preparing adequate accommodation for professors to be placed nationally
d. Ensuring all the required inputs and facilities through procurement, collaboration, partnership, and academic mobility scheme implementation
e. Identifying and getting preparation to use PhD models exclusively and/or integrate
f. Designing and implement various collaborative mode of PhD program delivery
g. Producing HCPP PhD graduates in 2025 within four years framework, with understanding that the scholarship will expire at the end of the fourth year.
h. Entering into inter-institutional agreement with collaborating local & international HEIs, research institutions, industries, and partners.
i. Mobilize resources
j. Sign and properly manage PhD students' agreement following all the legal procedures.
k. Delivering PhD study program
l. Developing and/or review the PhD curriculum under HCPP framework
m. Establishing institutional HCPP coordinating office

14.2.3. Collaborating Institutions:

a. Collaborating with host HEIs by sharing resources and providing teaching, co-advising, dual degree awarding etc
b. All the HEIs, research institutions, industries and line ministries will collaborate for HCPP, based on the legal framework (to be developed).
c. Collaborating in national resource mapping

14.2.4. Duties and Responsibilities of the Evaluating Committee

a. Follow up and evaluate the progress of the PhD student every six months.
b. Provide written feedback to the student, the adviser, the academic unit, and the institutional coordination office on the students' progress and next actions
c. Decide on the continuation of the PhD work depending on the performance of the PhD student.
d. If the student fails to perform to the requirement of the study program, the committee may propose termination of the study to the academic unit.
e. Conduct mock defense, evaluate, and decide the readiness of the dissertation for public defense (viva voice).

14.2.5. PhD Students:

a. Identifying research topic, developing a proposal, defend the proposal
b. Communicating with his supervisor timely and on regular basis
c. Publish at least two articles from his dissertation on journals indexed in web of science, Scopus, PubMed, and agora.
d. Abide by the senate legislation of the hosting and co-hosting institutions.
e. {resent his/her progress report to his adviser every month and to the doctoral committee/research group every semester.
f. Sign commitment to complete the study within defined four-year time framework. As per the agreement, the scholarship for the PhD student will expire at the end of fourth year. If the students will drop out or unable to complete within the given time, they will pay back all the expenses to the government including the bank interest.
g. Provide course to undergraduate and masters students when placed
h. Provide advice and mentorship service to masters students
i. Provide peer mentoring service

j. For cost sharing or service at their home institution
k. Have legally binding agreement with home HEIs

14.3. Institutional Arrangement

There will be established inspection team using standard monitoring and evaluation manual. The inspection will be biannual.

14.4. Reporting to the Steering committee

The inspection results will be reported to the task force where it will be evaluated and correction measures will be taken.

14.5. Measures to be Taken

a. When an institution fails to operate the HCPP as per the schedule and other standards, MoSHE will place the students to other HEI(s).
b. Any procurement, property and financial accountability related issues will follow the accountability procedures of MoF. For this sake, the institutions internal audit and the federal audit will oversee the whole transaction as per the regular audit schedules. The institution head or the steering committee can invite the auditors when necessary.
c. Any leadership accountability follows the regular higher education leadership accountability procedures. This includes failure to manage the HCPP implementation.
d. Professors accountability follows the regular academic staff accountability procedures
e. The PhD students accountability will follow the regular students accountability procedures

Hence, professional and students ethics standards and code conducts are active over the actors of the HCPP program.

14.6. Recognition and Award Scheme

There will be recognition and award program to the:

- Best HCPP PhD student award based on their contribution and academic achievement
- Best professor of HCPP
- Best host HEI
- Best collaborating institution (s)

The recognition and award will be based on the contribution, achievement and excellence documented during the program. The detail criteria will be developed.

14.7. Moral and Social Incentives for Professors

- Certificate of recognition
- Inviting to give talk on teachers' day
- Material award
- Best professor award of the year: international visit for fifteen days with all full package (round trip air ticket, accommodation, VISA fee, health insurance, local transportation, Per diem)
- Promotion on social media, mass media, university website,
- Two publication fees on peer review journal

15. Project Budget and Resource Requirements

To determine the required budget and resources for the HCPP the following rates and assumptions are used for the purpose of cost estimation. The HCPP shall be implemented based on the competitive thematic research procedures, Consequently, the HEIs shall develop implementation plan per each program at their institution level and decide rates if any following the regular procedures. (Refer to Annex for detailed information.)

16. Logical Framework of the Project

Table 21: Logical Framework of HCCP

Narrative summary	Objectively verifiable indicators	Means of verification (MoV)	Assumptions
General Objective: Build the human resource capacity of HEI in national priority areas through special intervention and implementing the differentiation to achieve 5000 PhD graduates from 2021-2025.	Number of PhD graduates in the priority areas produced in the 5 years	• Reports of HEI • Supervision	Strong interinstitutional and international collaboration
Specific Objectives 1. To enhance the capacity of local HEIs in PhD program provisions 2. To strengthen teaching, research and community engagement capacity of the Ethiopian HEIs. 3. To enhance the quality, relevance, access, and equity of PhD research outputs, 4. To strengthen the collaboration and networking among partner HEIs, research institutes, and partners. 5. To involve Ethiopian diaspora scholars in teaching, research, and resource mobilization 6. To fulfill the needs of qualified teachers and researchers in HEIs 7. To promote internationalization through academic mobility. 8. To build the capacity of HEIs to produce competent and capable human resource that fit the national needs. 9. To gradually build-up and retain Ethiopian scholars.	• Number of Publications in high impact journals • Local PhD training capacity enhanced • Number of citations • Number of technologies transferred and used • Number of patents obtained • Number of Ethiopian diaspora scholars involved in the PhD Training • Improved Ratio of PhD: MSc in HEI • Number of doctoral students exchanged • Number of associate professors and Professors in HEI and researchers in industry and research centers promoted • Reduced brain drains • Improved international Rank of the Universities	• Reports of HEI • Citation index • Survey • Reports • Evaluation reports • Google scholar/ Scopus/ Thomson Routers / web of science/ PubMed/Agora • Webometric ranking indices Field supervision	Graduates will stay in partner universities Reduced staff turnover
Activities 1. Providing necessary inputs to HEI for opening / expanding PhD program in the national priority areas	• Inputs required • Residence (dormitory • Renovation=707,200,000 • Building=2,610,000,000		Preconditions Adequate resources are

2. Integrating doctoral research, training and service in HEI through thematizing research on priority areas 3. Making publication of research outputs a requirement for PhD graduation 4. Providing strong collaborative supervision of doctoral students 5. Establish state-of-the art Laboratories or facilitating access to such centers through partnerships 6. To strengthen the collaboration and networking among partner HEIs, research institutes, and partners. 7. Accrediting research laboratories in HEIs 8. Mobilizing Ethiopian Diaspora and Ethiopian Friendly scholar overseas using Embassies, Consulates, EDMA and other platforms to be engaged in teaching, research, and resource mobilization for PhD trainings 9. Fulfilling the needs of qualified teachers and researchers in HEIs 10. Writing research grants in collaboration overseas universities with an inbuilt students' mobility scheme 11. Engaging local professors in HEI, industry and elsewhere in the country in teaching, supervising, mentoring and evaluating doctoral students beyond their home institutions through collaboration Scheme. 12. Remunerating all personnel involved in doctoral training programs in all aspects. 13. Providing skills training on instrument operation laboratory management, data handling, PhD supervision and research grant writing 14. Distributing duties and responsibilities to all collaborating institutions and the ministry (Division of duties). 15. Maintaining and renovating available equipment which are not functional to make them operational.	• Staff remuneration for teaching = 86,112,000 ETB • Staff remuneration for advising = 1,306,562,400 ETB • Research proposal review = 35,679,000 ETB • Staff transport = 62,800,000 ETB • Stipend= 1,100,736,000 • Students PhD research grant = 1,516,300,000 ETB • International Conference participation per PhD students = 553,024,500 ETB • Local Conference participation per PhD students = 38,737,200 ETB • International Examiner per student = 326,208,000 ETB • Local Examiner per student = 193,686,000 • Five journal data base subscription for five years ETB 763,678,291 • Hostel and Guest house = 3,317,200,000 ETB • PhD students Office = 104,000,000	mobilized and be available on time Laboratories, workshops, and other faculties will be fulfilled

17. Conclusion

The HCPP is special intervention initiative to produce 5000 PhD graduates within five years. The peculiar features HCPP are national placement of professors and PhD students, collaboration with HEIs, industries and research institutions that promote the relevance and quality of the program. Having its own national and institutional coordinating office as well as higher education and training relevance and quality fund office is the new approach that can boost the efficiency of the program. Mostly, the extraordinary top leadership commitment and clear vision is the greatest opportunity to ensure the program quality through robust monitoring and evaluation.

18. Annex

Annex -1: Justification for estimation of budget for HCPP

The following issues are taken into consideration in calculating the costs required for running the HCP program for the five years

a) A professor/associate professor can be primary adviser for 7 students while assistant professors with PhD can be co-adviser for 3 students under the one major adviser. The maximum number of PhD students under the adviser and co-adviser will be determined by host and co-host HEIs based on the nature of the PhD program.
b) Salaries of the PhD students were not considered as they will be paid by their respective organization even before they joined the PhD program. It was agreed to be not considered as part of the project
c) The minimum class/section size was estimated to be 25 Students. If the class size increases more than this through integration using an online system, the cost can go down.
d) The research budget was considered to be 300,000 for science and 200,000 for social science doctoral student.
e) The credit hours per PhD student is assumed to be 3 Cr Hr for primary adviser and 2 Cr Hr for co-adviser.
f) As it is a home-grown program, greater emphasis is given to the national staff wherever they are, and costing has considered this.
g) Most of the universities have dormitories for undergraduate students, while some universities have limited number of apartments for the doctoral students. Therefore, renovation, expansion and new construction are considered. For instance, modifying a common Kitchen for the residences can be required to make the dormitories the functional in some universities.
h) Average of 18 credit hours are considered to be delivered as a taught course for the doctoral program where it is commonly 6-12 Cr Hrs per semester.
i) For conversion into USD, and exchange rate of 38 was considered.

Annex -2: Revising Payment Rates

S.No	Items		As is		To Be	
			Adviser	Co-Adviser	Adviser	Co-Adviser
1	Research advising	Cr. Hr per PhD student for research advising	2 Cr Hr	1.5 Cr Hr	3 Cr Hr	2 Cr Hr

		Payment per Cr Hr for research Advising	ETB 250	ETB 200	ETB 350	ETB 300
		Number of PhD students per Adviser	Not harmonized (commonly up to 4 -10)	Not harmonized (commonly up to 4-10)	7 PhD Students per adviser	10 PhD students
2	Academic Rank of advisers		Professor and/or	Professor,	Professor	Professor
			Associate Professors	Associate professor	Associate Professor	Associate Professor and
				Assistant professor		Assistant professor with PhD only
3	Duration of the PhD Study		4-8 Years		3-4 Years	

The revised rates included in students stipend and research grant are:

S.No	Item	As Is		To Be
1	Research Grant	Natural Science	60,000	300,000
		Social Science	40,000	200,000
2	House Allowance	AA	1000	4000
		Out of AA	800	2500
3	Transport		250	500
4	Stationery		500	1000

Annex -3: Expected finance for PhD Students

Table 11: Stipend and research grant for PhD students

S.No	Programs	No of Programs	Number of Students			Research Grant (Ave)	Logistics per Individual candidate (Monthly stipend)				Total Research	Grand Total (Stipend + Research)
			2021	2022	Total		Stationary	House Allowance	Transport	Subtotal		
1	Agriculture	23	1220	945	2165	300,000	1000	3000	500	467,640,000	649,500,000	1,117,140,000
2	Manufacturing	26	996	750	1746	300,000	1000	3000	500	377,136,000	523,800,000	900,936,000
3	Mining	6	208	172	380	300,000	1000	3000	500	82,080,000	114,000,000	196,080,000
4	ICT	9	388	292	680	300,000	1000	3000	500	146,880,000	204,000,000	350,880,000
5	Tourism	3	77	48	125	200,000	1000	3000	500	27,000,000	25,000,000	52,000,000
Subtotal		67	2889	2207	5096					1,100,736,000	1,516,300,000	2,617,036,000
Grand Total											ETB	2,617,036,000
											USD (38)	68,869,368

Note:

House allowance per PhD student will be 4000 in AA and 2500 out of AA, this will be indicated in the guideline. But for cost estimation 3000 is used as average. The research projects having special contribution to the national development will be funded with special consideration irrespective to research grant limit.

Annex -4: Required Facilities

Table 12: For Professors

N/S	Items	Facilities	Unit	Quantity	Unit Price	Remark
1	Office	Fully furnished with:				
		• Chair	#	1	2,500	This is demand for one Professor
		• Table	#	1	3,500	
		• Internet connection	#	1	500	
		• Bookshelf	#	1	5,500	
		• Coat hunger	#	1	1,500	
		Common access to Photocopy machine & scanner	#			
		• Printer	#	1	10,000	
		• Floor carpet	#	1	7,500	
		• Desktop	#	1	8,500	
		• Fixed whiteboard	#	1	6,500	
		• Guest chairs	#	2	5,000	
		• Chest drawer /	#	1	2,800	
		• **Arch Files**	#	1	1,500	
		• XP-pen digital writing or	#	1	300	
		Total			**55,600**	
2	Transportation	from home to host institution (Car or airplane) round trip		Total	12,000	Organized by host institution
		Study by service car				
3	Full accommodation	Fully equipped guest house/ standard Hotel reserve				Arranged by host institution
		Breakfast, lunch, dinner, coffee, soft drink				
4	Stationery	General Stationery items:	#			Arranged by host institution
		• papers, pencil, pen, Notebook	#	1pac		
		• Table fix pencil sharper	#	1		
		• Staples and agraff tray	#	1		
		• Staples and stapler	#	1		
		• Paper tray	#	1		
		• Paper punch	#			
		• Bag	#			
		• Flash disc (64 GB)	#			
		• External hard disk (2TB)	#			
		• All licensed software related to his/her specialization	#			
Note: Laptop will be provided by home institution						
Total **stationary**					15,000	
Sub Total per professor					**82,600**	

Table 13: For HCPP PhD student

N/S	Items	Facilities	Quantity	Remark
1	Office	Fully furnished with: • Chair and group table   • Internet connection • Bookshelf • Printer/Photocopy machine (in group) • Desktop (high capacity) • Smart group discussion board (White board) • Packs of printing paper • Log/Research book	-depend on number of students	Laptop will be provided by home institution
2	Accommodation	Hostel equipped with all necessary facilities such as: • Internet connection • Chair and table • Common kitchen • Bathrooms • Common TV service • Stand box for cloth • Bookshelf • Common place for indoor games	1 each 1 1	Arranged by host institution

Annex -5: Financial Incentives

Table 14: For **main** supervisor (Professor/ Associate Professor)

N/S	Incentives	Amount/Rate ETB	Remark
1	Adviser-ship Honorarium per graduate Ph.D. student graduated	67,200 = (2*350*6*16)	
2	Course delivery	500 ETB per credit	e.g. 500*3*2*16 = 48,000
3	Proposal Review/Progress Review	3500	Per proposal or progress report
4	Dissertation Examination fee		
	External examiner	15000	One external
	Internal examiner	15,000	For two internal examiners
5	Per diem	Based on existing rate	

6	Participation on international conferences, workshop once per year To be covered: • round trip air fare • registration fee • per diem, • train/bus fare • travel insurance	Per diem based on MOF rate	
7	Participation on national conferences, workshop Cover: • round trip air fare • registration fee • per diem, • car or tax fare	Per diem based on MOF rate	
8	Healthcare	Reimbursement of all his/ her medical expenses based on legal receipt	In the case of sickness during teaching activity at host institution
9	VISA fee	Based on legal receipt	

Table 15: For Co-supervisor (Associate Professor/ Assistant Professor)

N/S	Incentives	Amount/Rate ETB	Remark
1	Advisership Honorarium per graduate Ph.D. student graduated		
	Associate Professor	50400 =(1.5*350*6*16)	
	Assistant Professor	43,200= (1.5*300*6*16)	
2	Course delivery	500 ETB per credit	e.g. 500*3*2*16 = 48,000
3	Proposal Review/Progress Review	3500	Per proposal or progress report
4	Dissertation Examination fee		
	External examiner	15000	One external
	Internal examiner	10,5000	For two internal examiners
5	Per diem	Based on existing rate	
6	Participation on international conferences, workshop once per year To be Covered: • round trip air fare • registration fee • per diem, • train/bus fare • travel insurance)	Per diem based on MOF rate	

7	Participation on national conferences, workshop Cover: • round trip air fare • registration fee • per diem, • car or tax fare)	Per diem based on MOF rate	
8	Healthcare	Reimbursement of all his/ her medical expenses based on legal receipt	In the case of sickness during teaching activity at host institution
9	VISA fee	Based on legal receipt	

Table 16: For International guest as main supervisor (Distinguished professor/ Professor/ Associate Professor)

N/S	Incentives	Amount/Rate ETB	Remark
1	Advisership Honorarium per graduate Ph.D. student graduated	67,200 = (2*350*6*16)	Converted into USD for non-Ethiopian Citizen both by birth and blood
2	Course delivery	2000USD	For less than 20 days
		5000/4500/3500 USD/month	For more than 21 working days in respective order
3	Proposal Review/Progress Review	3500 ETB	Per proposal or progress report (if applicable) converted into USD
4	Dissertation Examination fee		
	External examiner	15000 ETB	Converted into USD for non-Ethiopian Citizen both by birth and blood
	Internal examiner	10,5000	Converted into USD for non-Ethiopian Citizen both by birth and blood
5	Per diem	Based on existing rate	For excursion
6	Full accommodation	Full service at hotel or in guest house	
7	Round trip air fare	Provide air ticket	
	Local Transportation service	Standby car	
8	Arrange visit program	once	If applicable
9	VISA fee	Refund based on legal receipt	

Table 17: For Ethiopian Diasporas as main supervisor (Professor/ Associate Professor)

N/S	Incentives	Amount/Rate ETB	Remark
1	Advisership Honorarium per graduate Ph.D. student graduated	67,200 =(2*350*6*16)	Payable in ETB

2	Course delivery	75000/67000 ETB/ Month	In respective order (Payable in ETB)
3	Proposal Review/Progress Review	3500	Per proposal or progress report (if applicable)
4	Dissertation Examination fee		
	External examiner	15000	One external
	Internal examiner	10,5000	For two internal examiners
5	Per diem	Based on existing rate	For excursion
6	VISA fee	Refund based on legal receipt	
7	Full accommodation	Full service at hotel or in guest house	
8	Round trip air fare	Provide air ticket	
	Local Transportation service	Standby car	

Table 18: For HCPP students

N/S	Incentives	Amount/Rate ETB	Remark
1	House allowance	5000	
2	Transportation allowance	1000	
3	Stationery	1000	
4	Pocket money	1000	
5	Research grant (Natural/Social)	500, 000 / 350,000	
6	Participation on international conferences, workshop once throughout study period To be Covered: • round trip air fare • registration fee • per diem, • train/bus fare • travel insurance	Per diem based on MoF rate	Covered by host institution
7	Participation on national conferences, workshop once per year Cover: • round trip air fare • registration fee • per diem, • car or tax fare	Per diem based on MOF rate	Covered by host institution
9	VISA fee	Based on legal receipt	
10	Publication fee	1700USD/paper	At most 2 publication
11	Research visit for three to six months	• 1500USD/month (USA/Canada/EU) • 1300USD/ month (Asia, Latin America) • 1200USD/month (African country)	

Table 19: Electronic Journal Data Base Subscription Fees (USD)

Electronic Journal Data Base Subscription Fees (USD)						
S. No	Journal Data Base Name	**2021**	**2022**	**2023**	**2024**	**2025**
1	IEEE	50,000	51,500	54,178	56,995	59,959
2	INFORMS	550	550	579	609	640
3	ELSEVIER	1,271,028.30	1,449,321.10	1,524,686	1,603,969	1,687,376
4	SPRONGER	63,510	66,691	70,159	73,807	77,645
5	WILEY	2,145,000.00	2,145,000	2,256,540	2,373,880	2,497,322
Total (USD)		3,530,088	3,713,062	3,906,141	4,109,261	4,322,942
Total (ETB)		137,673,444	144,809,422	152,339,512	160,261,166	168,594,747

Table 19: Conference participations

S.No	Item		2021	2022	2023	2024	2024	
1	International Conference Participation Per PhD Student (only one time)	108,500	0	0	184,341,500	184,341,500	184,341,500	1699 sts per the year
2	Local Conference Participation Per PhD Student per conference (only two time)	7,600			12,912,400	12,912,400	12,912,400	
3	Proposal review	3,500	0	20,223,000	15,456,000	0	0	*2889 sts, **2208sts and two reviewers per student
4	International examiner for dissertation examination per PhD students	30,000	0	0	0	86,670,000	66,240,000	*2889 sts, **2208 students and One examiner per student, the cost includes accommodation)
5	Local examiner for dissertation examination per PhD students	19,000	0	0	0	109,782,000	83,904,000	*2889 sts, **2208 students and two examiner per student, the cost includes 15,000 honorarium & 4000 per dium,

Annex -6: Accommodation Renovation, Construction and Facilities

Table 19: Accommodation

N/S	Items	Quantity	Unit cost ETB	Total Cost (ETB)	Total Cost USD
1	Renovation				
	For bachelor	47 building (G+3)	10,400, 000	488,800,000	12,863,158
	For Family	21 building (G+3)	10,400, 000	218,400,000	5,747,368
2	New building construction				
	For bachelor	42 building(G+4)	45,000,000	1,890,000,000	49,736,842
	For Family	16 building (G+4)	45,000,000	720,000,000	18,947,368
Total			110,800,000	3,317,200,000	87,294,736

Table 20: Office building and Facilities

N/S	Items	Quantity	Unit cost ETB	Total Cost (ETB)	Total Cost USD
1	Chair and group table (4 student/table)	1250	45,000	56,250,000	1,442,308
2	Office building renovation, (G+3) building	One per 10 HEIs	10,400,000	104,000,000	2,666,667

Annex -7: Required budget Summery

(Teaching- learning, advising, research grant and conference participation)

S.No	Item	2021	2022*	2023**	2024***	2025****	
1.	Students Stipend	156,006,000	275,184,000	275,184,000	275,184,000	119,178,000	
2.	Professional fee for Course work (teaching)	43,056,000	43,056,000	0	0	0	
3.	PhD Research Advising fee for professors	Course work	246,074,400	435,520,800*	435,520,800	189,446,400**	*for 2889 sts , **for 2208 sts
4.	Proposal review	0	20,223,000*	15,456,000**	0	0	*2889 sts, **2208sts and two reviewers per student, ETB 3,500 per reviewer
5.	PhD Students Research Grant	0	595,094,192*	743,867,739.40**	177,338,069.07***	0	*for 2000 student, **for 2500 sts, ***for 596 sts, taking ETB 297,547 as avg for the grant
6.	Journal data base subscription	137,673,444	144,809,422	152,339,512	160,261,166	168,594,747	5 Journal data bases
7.	International Conference Participation Per PhD Student (only one time during the study)	0	0	184,341,500	184,341,500	184,341,500	ETB 108,500 per student and 1699 sts per the year
8.	Local Conference Participation Per PhD Student per conference (only two time during the study)	0	0	12,912,400	12,912,400	12,912,400	It includes per diem, transport, four days stay

9.	International examiner for dissertation examination per PhD students	0	0	0	184,896,000*	141,312,000**	*2889 sts, **2208sts and two reviewers per student, ETB 30,000 (ETB 20,000 honorarium and ETB 10,000 accommodation, and 34, 000 for round trip transport
10.	Local examiner for dissertation examination per PhD students	0	0	0	109,782,000*	83,904,000**	*2889 sts, **2208 students and two examiner per student, the cost includes 15,000 honorarium & 4000 per diem,
Subtotal		336,735,444	1,324,441,014	1,819,621,951	1,540,235,935	899,689,047	
Grand Total						**5,021,034,344**	

Annex -8: For International guests

S.No	For International guest	Rate	Remark
1.	Advisership Honorarium per graduate Ph.D. student graduated	163,800 ETB	3 Cr Hr*ETB350*52 weeks*3 yrs
2.	Course delivery for less than 20 days	2000 USD	Salary
3.	Course delivery for more than 21 days (payment per month)	3500 USD	Salary
4.	Proposal review	3500 ETB	
5.	Transport (round trip)	34,000	Average
6.	Guest House will be provided by host or co-host HEIs		

Annex -9: For Hostel and Guest House Preparation

N/S	Items	Quantity	Unit cost ETB	Total Cost (ETB)	Total Cost USD
1	Renovation				
	For bachelor	47 building (G+3)	10,400, 000	488,800,000	12,863,158
	For Family	21 building (G+3)	10,400, 000	218,400,000	5,747,368
2	New building construction				
	For bachelor	42 building(G+4)	45,000,000	1,890,000,000	49,736,842
	For Family	16 building (G+4)	45,000,000	720,000,000	18,947,368
Total			110,800,000	3,317,200,000	87,294,736

18.1. PhD Students Office

N/S	Items	Quantity	Unit cost ETB	Total Cost (ETB)	Total Cost USD
1	Chair and group table (4 student/table)	1250	45,000	56,250,000	1,442,308
2	Office building renovation, (G+3) building	One per 10 HEIs	10,400,000	104,000,000	2,666,667

Annex 1: National Professors Placement Format

S.No	Full Name	Academic Rank	Professor In	research area (Specialization)	Home University (Placed from)	Host University (Placed to)	Co-Host University (Placed to)	Remark
1.								
2.								
3.								
4.								
5.								