NSQF QUALIFICATION FILE

CONTACT DETAILS OF THE BODY SUBMITTING THE QUALIFICATION FILE

Name and address of submitting body:

Ministry of Environment, Forest & Climate Change (MoEF&CC)
Indira Paryavaran Bhawan, Jor Bagh Road,
New Delhi- 110003

Name and contact details of individual dealing with the submission
Name: Ms. Urmila

Position in the organisation: Joint Director, MoEF&CC

Address if different from above:

Tel number(s): +91-11-24621961

E-mail address: b.urmila@nic.in

List of documents submitted in support of the Qualification File
1. Curriculum with training plan (Annexure-I)
2. Documentary Evidence of Need (Annexure-II)

NSQF QUALIFICATION FILE

SUMMARY

1	**Qualification Title**	**Certificate Course on Propagation and Management of Bamboo**
2	**Qualification Code, if any**	--
3	**NCO code and occupation**	--
4	**Nature and purpose of the qualification (Please specify whether qualification is short term or long term)**	Nature: Propagation and Management of Bamboo Purpose: To develop technical skill on various aspects of bamboo such as botany & taxonomy, nursery, propagation, plantation, value addition, preservation etc. **Short Term**
5	**Body/bodies which will award the qualification**	MoEF&CC
6	**Body which will accredit providers to offer courses leading to the qualification**	MoEF&CC
7	**Whether accreditation/affiliation norms are already in place or not , if applicable (if yes, attach a copy)**	Training programmes would be undertaken as part of the Green Skill Development Programme (GSDP) under the ENVIS Scheme. The courses would be run by the ENVIS Hubs (hosted by the respective State Government /UT Administration) and ENVIS Resource Partners (RPs)- (hosted by environment-related governmental and non-governmental organizations/ institutes of professional excellence) and other institutes. The assessment of the training programmes would be a regular exercise as part of the Memorandum of Cooperation signed with ENVIS Hubs and RPs and Memorandum of Understanding (MoU) between the ENVIS Hubs/RPs and other GSDP Partners. The courses would also be run by the Autonomous Bodies/Institutes under the Ministry for which no MoC is required.
8	**Occupation(s) to which the qualification gives access**	Bamboo Industry, Bamboo Boards, Bamboo Research and Training Centre, Forest Development Agency
9	**Job description of the occupation**	After completion of the course, trainees may be able to research in Botany and Taxonomy of Bamboo & Propagation Techniques/Nursery Practices & Plantation Management/ Conservation of Genetic Resources/Utilization/Trainer
10	**Licensing requirements**	--
11	**Statutory and Regulatory**	--

	requirement of the relevant sector (documentary evidence to be provided)	
12	**Level of the qualification in the NSQF**	Level 5
13	**Anticipated volume of training/learning required to complete the qualification**	240 hrs (Theory & Practical)
14	**Indicative list of training tools required to deliver this qualification**	Verbal Lectures, PPT Presentations, Demonstration, Field Visits, AV presentations.
15	**Entry requirements and/or recommendations and minimum age**	Class XII pass
16	**Progression from the qualification (Please show Professional and academic progression)**	Master Trainer/Bamboo Promoter
17	**Arrangements for the Recognition of Prior learning (RPL)**	There is no arrangement of RPL as of now
18	**International comparability where known (research evidence to be provided)**	Similar Course is being offered in other developing countries.
19	**Date of planned review of the qualification.**	March, 2020

20. Formal structure of the qualification

Mandatory Components

S.No.	**Title of component and identification code/NOSs/Learning outcomes**	**Estimated size (learning hours)**	**Level**
1	Botany and taxonomy of Bamboo, its utilization and resource distribution	30	
2	Propagation and Silvicultural management of bamboos, bamboo tissue culture, diseases and their control	30	
3	Bamboo cultivation and Conservation of bamboo genetic resources	30	
4	GIS Bamboo Management	30	
5	Techniques in bamboo management	30	

6	Marketing and Trade of bamboo	30	
7	Bamboo based entrepreneurship	30	
	Total	**240**	**5**

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SECTION 1
ASSESSMENT

21	**Body/Bodies which will carry out assessment:** The assessment will be conducted by the evaluators of Forest Research Institute (FRI), Dehradun; Himalayan Forest Research Institute (HFRI), Shimla; Institute of Forest Productivity (IFP), Ranchi; Institute of Wood Science and Technology (IWST), Bengaluru; Kerala State Council for Science, Technology & Environment (KSCSTE), Thiruvananthapuram; Rain Forest Research Institute (RFRI), Jorhat; Tropical Forest Research Institute (TFRI), Jabalpur; and Forest & Environment Department, Ranchi. These evaluators would be chosen from the panel of experts who are not part of the trainers. Based on the evaluation, certificates will be issued.
22	**How will RPL assessment be managed and who will carry it out?** No provision of PRL in this programme.
23	**Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, reliable and fair and show that these are in line with the requirements of the NSQF.** The assessment will be done though theory, practical and oral examination at the end of the course. Moreover, there will be regular evaluation to assess the level knowledge the trainees have acquired. Certain percentage of marks of regular evaluation will be added in the final score. For practical examination, the trainers as well as course supervisors will constantly keep a vigil on the trainees. Any error committed by the trainees will be corrected immediately; learning by doing technique will be adopted for practical assessment. In theory, a final examination will be conducted at the end of the course, in which 50% scoring will be considered to be qualifying marks. The assessment will be conducted through English/Hindi/Regional languages.

24. Assessment evidences

Title of Component:

S. No.	Outcomes to be assessed	Assessment criteria for the outcome
1	At the end of the course, trainees would be able to: - Understand Botany and taxonomy of Bamboo, - Explain the characters of various species of bamboo and bamboo tissue culture - Describe bamboo seed technology & treatment technique for bamboos for enhancing durability, propagation and silvicultural management of bamboos and medicinal importance of Bamboos, - Describe dieses of bamboo and the measures for their control, - Understand conservation of bamboo genetic resources, market & trade of bamboos and bamboo based entrepreneurship, - Demonstrate knowledge of the activities covered in the course.	By conducting Evaluation Test- practical exam, skill test (preparation & quality assessment, techniques implemented) and question-answer session/written test
	Means of assessment 1	Regular evaluation at week-end: Theory as well Practical Sessions

	Means of assessment 2	Final Assessment through Written, Practical and Viva-voce. Certain marks will be carried from already conducted assessments at week end. Pattern may be on the qualitative as well quantitative questions.
	Pass/Fail	Overall pass percentage is 50. Weightage will be as follows: Theory: 40%, Practical: 40% and Viva-voce: 20%

SECTION 2
25. EVIDENCE OF LEVEL

OPTION A

Title/Name of qualification/component: Certificate Course on Propagation and Management of Bamboo Level: 5			
NSQF Domain	**Outcomes of the Qualification/Component**	**How the outcomes relates to the NSQF level descriptors**	**NSQF Level**
Process	The trainees would gain knowledge about planting material, propagation and silvicultural management of bamboos, harvesting methods and different processing and preservation techniques. They are able to understand traditional knowledge and practical uses of bamboos. Field observations and data collection techniques would also be taught.	The trained person would have factual knowledge of propagation and processing of bamboo. After completion of the course, trainees may be able to research in Botany and Taxonomy of Bamboo & Propagation Techniques/Nursery Practices & Plantation Management/ Conservation of Genetic Resources/Utilization.	5
Professional knowledge	The trainees would have basic knowledge of various aspects of bamboo such as botany & taxonomy, nursery, propagation, plantation, value addition, preservation etc. They would have hands-on practice in laboratory bamboo seed technology, tissue culture, treatment techniques for bamboos for enhancing durability, etc. They would also learn about the basics of carbon sequestration, conservation of bamboo genetic resources, bio-fertilizer, vermicomposting, medicinal importance of bamboo and recent advancements in bamboo	The trained persons would have enough knowledge about the distribution, utilization, species diversity, propagation techniques, agroforestry, economics etc. They would be able to use processing, propagation and preservation techniques. The course not only would enable the trainees to undertake extensive research in bamboo sector but would also promote entrepreneurial development.	5

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Title/Name of qualification/component: Certificate Course on Propagation and Management of Bamboo Level: 5			
NSQF Domain	**Outcomes of the Qualification/Component**	**How the outcomes relates to the NSQF level descriptors**	**NSQF Level**
	sector in India and abroad.		
Professional skill	Demonstrate the ability to collect field data, data analyses and practical skill in similar domains. This training programme is combination of theory and practical with a focus on learning and scope for employability. In addition to this, candidates will have additional technical skills for use of GIS in bamboo management and conservation. Major portion of the course will be hands on training – field data collection, data analyses, etc. through which trainee can understand how to use all knowledge practically on field. Also enough time would be given to practice on use of latest technologies.	The trained persons would possess practical skill to collect data from the field using basic technologies for spatial data collection with attribute information and data management.	3
Core skill	With various field visits, trainee would get an opportunity to communicate with people and along with this trainee would come across with many other things such as basic understanding of social and natural environment, basic data collection skills, conservation activities, etc.	The core skill enhanced under this training is effective communication, basic identification of the species and usage of appropriate technology.	5
Responsibility	With the knowledge about propagation, data collection, data storage, etc, trainees are able to initiate the processes/techniques in	The trainees would be responsible for the data collected, techniques implemented and may undertake research in bamboo sector. They may	5

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Title/Name of qualification/component: Certificate Course on Propagation and Management of Bamboo Level: 5			
NSQF Domain	**Outcomes of the Qualification/Component**	**How the outcomes relates to the NSQF level descriptors**	**NSQF Level**
	propagation and management of bamboo.	also undertake responsibility for other's works as Master Trainer.	

SECTION 3
EVIDENCE OF NEED

<table>
<tr><td>26</td><td>What evidence is there that the qualification is needed? What is the estimated uptake of this qualification and what is the basis of this estimate?
<table>
<tr><th>Basis</th><th>In case of other Awarding Bodies (Institutes under Central Ministries and states departments)</th></tr>
<tr><td>Need of the qualification</td><td>India, having the second largest genetic resources of bamboo, possesses immense potential to utilize them for socio-economic development and up-liftment of the people especially in the regions which are abundantly endowed with this sustainable natural resource. Bamboo regeneration and technologies for value added products is required to integrate bamboo growers, artesian and high end bamboo products with the different aspects of utilization of bamboo resources. An article depicting bamboo as a potential source of income and livelihoods is enclosed.</td></tr>
<tr><td>Industry Relevance</td><td>The curriculum/course syllabus has been jointly prepared by the Scientists/Experts in the institutions/Govt. Departments viz. FRI, Dehradun; HFRI, Shimla; IFP, Ranchi; IWST, Bengaluru; KSCSTE, Thiruvananthapuram; RFRI, Jorhat; TFRI, Jabalpur; and Forest & Environment Department, Ranchi, undertaking the course in their respective locations.</td></tr>
<tr><td>Usage of the qualification</td><td>This course has been designed under GSDP for the first time.</td></tr>
<tr><td>Estimated uptake</td><td>An uptake of 20-30 students at each location is envisaged.</td></tr>
</table></td></tr>
<tr><td>27</td><td>Recommendation from the concerned Line Ministry of the Government/Regulatory Body. To be supported by documentary evidences

NA</td></tr>
<tr><td>28</td><td>What steps were taken to ensure that the qualification(s) does (do) not duplicate already existing or planned qualifications in the NSQF? Give justification for presenting a duplicate qualification</td></tr>
</table>

	National Qualifications Register was searched to assess if there was any similar qualification and it was found that Agriculture Sector Council of India (ASCI) is conducting a similar course with qualification title 'Bamboo Grower'. Some of the components proposed in the present QF are overlapping with the ASCI's file as both the courses are bamboo centric and basics of bamboo need to be explained. However, the present course caters to the taxonomy of bamboo, in-situ & ex-situ conservation of endangered species of bamboo and the associated environmental factors. The course also envisages providing training on basics of carbon sequestration and its linkage with bamboo, medicinal importance of bamboo and recent advancements in bamboo sector in India and abroad. Candidates will also have additional technical skills for use of GIS in bamboo management and conservation.
29	**What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated? Specify the review process here.** Feedback would be taken from experts, students and teachers regarding the course content, structure and timeline of the programme. Feedback will also be taken from the Centres conducting the course. Changes suggested will be assessed by the Ministry before incorporating them in the curriculum. Next review will be done in March 2020.

SECTION 4
EVIDENCE OF PROGRESSION

30	**What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?** ***Show the career map here to reflect the clear progression*** The course is designed in such a way that it will include most important issues relating to bamboo sector. This may be a base for studies / courses where trainees may progress further in this field in future. It will give basic understanding on bamboo which is the most important raw material for livelihood generation. **Research Assistant --- On the Job Training --- Master Trainer/Self-sustainable Entrepreneur**

Annexure-I

Curriculum with training plan

S. No.	Course Contents	Estimated size (learning hours)
1.	Botany and taxonomy of Bamboo Introduction on Bamboo utilization & economics of bamboos Bamboo resource distribution in India and its importance Selection of superior stand and CPCs of bamboos Bamboo seed technology & treatment for quality seedlings production Field visit	30
2.	Propagation and silvicultural management of bamboos Clump management and harvesting Dieses of Bamboos in Nursery and Plantations- and control Bamboo tissue culture Field visit, Tissue culture Lab visit	30
3.	Soil and nutrition for bamboo cultivation Conservation of bamboo genetic resources Basics of carbon sequestration environmental awareness and bamboos Forest development agency JFM and Bamboos Demonstration in field and Tissue culture/Mist chamber	30
4.	Treatment technique for bamboos for enhancing durability Bio-fertilizer, Vermicomposting, Composting Treatments of bamboo for uses as timber and value added products GIS Bamboo management Field visit: Soil lab, Trial pots and plantation	30
5.	Nursery technique of bamboos and management Seedling production and plantation Bamboo plantation in agroforestry and social forestry Ethnobotany rational knowledge and use of bamboos Processing and preservation techs for edible bamboo shoots Advance techniques genetic diversity assessment Bamboo in JFM/FDA endeavours	30
6.	Market and trade of bamboos Role of SHG in bamboo production Medicinal importance of Bamboos	30
7.	Problems in bamboo marketing Utilization and economics of bamboo Transfer of technology for development of Bamboo Bamboo based entrepreneurship Value addition of bamboos for sustainable livelihood support	
	Total	**240**

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