

International Centre for Integrated Mountain Development (ICIMOD)

Request for Proposal (RFP)

to

**collaborate with ICIMOD as industrial partner
in the agriculture crop residue pelletisation project in the Terai region of Nepal**

Project: Reducing air pollution by creative use of pelletisation

Office Address: Dhapakhel-5, Lalitpur, Nepal

RFP Number: _____

Date of RFP Issue: 9 January 2025

Deadline for submission of RFP: 3 February 2025

Terms of reference

for

Collaboration with ICIMOD as industrial partner in the agriculture crop residue pelletisation project in the Terai region of Nepal

1. Introduction

The Hindu Kush Himalaya (HKH) region stretches 3,500km across Asia, spanning eight countries – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan. Encompassing high-altitude mountain ranges, mid-hills, and plains, the zone is vital for the food, water, and energy security of up to two billion people and is a habitat for countless irreplaceable species. It is also acutely fragile, and vulnerable to the impacts of the triple planetary crisis of climate change, pollution, and biodiversity loss.

The International Centre for Integrated Mountain Development (ICIMOD), based in Kathmandu, Nepal, is an international organisation established in 1983, that is working to make this critical region greener, more inclusive and climate resilient. For more information, read our [Strategy 2030](#) and explore our [website](#).

ICIMOD has partnered with the Punjab State Council for Science and Technology (PSCST), India, to implement the project ‘Reducing air pollution by creative use of pelletisation’ in the Indo-Gangetic Plain. PSCST is the technology partner, and the activity is funded by the US Department of State.

PSCST is an autonomous society under the State Department of Science and Technology serving as the state-level node for the Department of Science and Technology (DoST) of the Government of India and as think tank for the Department of Science, Technology and Environment of the Government of Punjab.

2. General Background

The Indo-Gangetic Plain (IGP) and surrounding regions face severe environmental issues due to the annual open burning of agricultural crop residues, particularly in the months of October and November, which is the rice paddy harvest season. Local farmers burn substantial amounts of paddy straw stubble, to prepare the fields for the next sowing season quickly, as this saves costs and time, but causes significant pollution. Although this burning is a localised action, its effects are widespread, impacting the entire HKH region. Specifically, a fourth of the human population, vast biodiversity, livestock, and even natural resources are affected by adverse environmental, socio-economic, and health consequences. In the IGP regional countries which include Bangladesh, India, Nepal, and Pakistan such actions were banned through policy and law enforcement. Despite this, farmers persistently adopt this practice.

Stubble burning releases several types of harmful pollutants into the atmosphere, with serious consequences for human health. A report from the Indian Council for Agricultural Research (ICAR) published in 2021 revealed that open burning of one metric tonne of paddy straw releases 13kg of particulate matter (PM_{2.5}), 60kg of carbon monoxide (CO), 1460 kg of carbon dioxide (CO₂), 0.2 kg of sulphur oxides (SO_x), 3.5 kg of nitrogen oxides (NO_x). Within the IGP region, about 100 million metric tonnes of agriculture crop residues are burned annually, while India alone burns 92 million tonnes of crop residue (Bhuvaneshwari et al., 2019), releasing vast amounts of pollutants and harmful gases. Likewise, numbers of fossil fuel-based industries operate within the IGP region, including, brick kilns, and cement factories, etc. Such types of industries are also responsible for releasing diverse types of pollutants, including PM, SO_x, NO_x, CO, CO₂, and black carbon (BC) etc., contributing significantly to environmental pollution. Thus, collectively, air pollution in the region is further intensified and these pollutants can easily travel across borders, significantly impacting human health and the environment within the IGP region.

Evidence shows that prolonged exposure to the smoke and pollutants from stubble burning can lead to or worsen respiratory conditions such as asthma and bronchitis and can cause chronic heart disease and lung cancer. Additionally, the pollutants cause severe irritation of the eyes, throat, and skin in the demographic of the IGP region, especially among children, the elderly, and pregnant women, who are more vulnerable and exposed to these health impacts.

To address this, ICIMOD has initiated a novel approach that involves harvesting agriculture crop residues, which are otherwise burned in the fields by the farmers. This is to encourage farmers to adopt alternative crop residue management techniques involving a combination of education, support, and additional revenue-generating opportunities, producing clean renewable energy. This initiative aims to create pellets from surplus agriculture crop residues for industrial use, thereby curbing stubble burning, substituting the use of fossil fuels (completely or partially) in industry. This is to reduce pollution and greenhouse gas emissions from both open burning and industrial fossil fuel use.

ICIMOD is seeking a qualified industrial partner to collaborate on the agriculture crop residue pelletisation project. This partner should have the capacity to set up a pelletisation plant, produce sufficient biomass pellets from locally available agricultural crop residue, mostly paddy straw in the Terai region of Nepal, and supply the product to consumers or end users. In parallel, ICIMOD will support its industrial partner, providing partial seed funding for the pellet plant setup, along with the necessary technical support.

3. GESI responsive

A high priority for ICIMOD is engaging women in agriculture and crop residue management through pelletisation, as an integral part of mainstreaming gender equality and social inclusion (GESI) into the project. To ensure the agricultural crop residue pelletisation process is inclusive and equitable,

we propose integrating GESI principles. This involves empowering women and disadvantaged groups through economic opportunities and inclusive decision-making. We will ensure equal access to resources, provide tailored training programmes, and advocate for enabling policy approaches. This approach aims to enhance participation and leadership, to contribute to the equitable sharing of the benefits of sustainable energy, fostering a more inclusive and resilient agricultural sector.

4. Objective

To identify a competent industrial partner capable of establishing a sustainable agricultural crop residue/paddy straw pelletisation facility, producing agriculture crop residue pellets for end users.

5. Scope of work

The purpose of this RFP is to invite the applications from potential manufacturing industries intending to initiate biomass pellet production in collaboration with ICIMOD as the industrial partner, having the knowledge and skills of industrial production and market development. Thus, the scope of work for APPLICANT(s) includes but is not limited to:

- **Pelletisation facility:**

APPLICANT(s) should be capable of setting up an entire pelleting plant for agriculture crop residue, mostly paddy straw, with a minimum production capacity of 500 kg pellets per hour and ensure its sustainable production. APPLICANT(s) should strictly adhere to the pellet's minimum technical specifications shown in Table 1 in this document.

- **Managing the resources:**

APPLICANT(s) should assure the full functionality and operation of the pellet plant with available, competent, and sufficient human resources, and well-trained operators and maintenance staff.

- **End-use:**

Pellets produced by the APPLICANT(s) must adhere to the defined specifications and be used by industries or enterprises (SMEs/MSMEs) to substitute 100% fossil fuel usage or in co-firing substituting the coal/fossil fuel partially.

- **Partnership commitment:**

APPLICANT(s) should commit to at least 3 years' partnership with ICIMOD for the pellet production and supply to diverse types of industries and enterprises.

- **After-sales service and support:**

APPLICANT(s) must keep an inventory of the minimum spare parts required for regular maintenance and troubleshooting to reduce interruptions due to machine downtime.

6. Technical performance of the pelleting plant

APPLICANT(s) should be able to meet the required technical standards of the pellets and have the capacity to produce the specified quality and outputs of agriculture crop residue pellets. It is

mandatory to meet the minimum standard of non-carbonised pellets as outlined in Table 1, which must be supported by a test report conducted in accordance with the standard procedures from a recognised accredited testing laboratory following internationally accepted testing methods (preferred ISO standards).

Table 1: Quality of the agriculture crop residue pellet

S.N.	Parameters	Specification
1	Base material/feedstock	Agriculture crop residues (<i>Base material or feedstock shall only be crop residues such as paddy straw; crop residues which produce oil during pulverisation are excluded</i>)
2	Production capacity	0.5 Tonnes Per Hour (TPH)
3	Length of a pellet	10–25 mm
4	Diameter	Preferred 10–15 mm (but must not exceed 25 mm)
5	Bulk density	>600 kg/m ³
6	Fines (small particles from pellet processing) (%)	<5%
7	Gross calorific value (ARB*)	Not less than 2800 Kcal/kg
8	Moisture content (ARB*) (%)	Preferred: < 8.5 % or not exceeding 14 %
9	Ash (ARB*) (%)	Preferred: < 5% but not exceeding 20%
10	Particle size distribution	After crushing and pulverising < 5mm
*ARB: as-received basis		

7. Finance

ICIMOD shall be contributing partial financing and the necessary technical support to the selected APPLICANT(s) as seed funding to ease the procurement, installation, and commissioning of the required pelleting plant. Details of the technical and financial support provided shall be underlined in the contract.

The APPLICANT(s) should provide the financial quote with the breakdown of all the costs and include the tax in the budget:

- Breakdown of other costs, unit, quantity, rate

8. RFP document

The APPLICANT(s) is expected to examine all corresponding instructions; forms, terms and specifications contained in the solicitation documents. Proposals must offer services for total requirement of documents. Failure to comply with these documents will be at the APPLICANT's risk and may affect the evaluation of the proposal.

If the APPLICANT(s) needs any further clarification about this RFP, please send your queries to the email address: consultancy.int@icimod.org

At any point of time prior to the deadline for submission of the RFP, ICIMOD may for any reason, whether on its own initiative or in response to a clarification requested by the APPLICANT(s), amend the RFP documents; ICIMOD will notify the interested parties about any amendments prior to the deadline.

9. Eligibility criteria

Interested APPLICANT(s) must meet the following criteria to be eligible for consideration:

- Must be a registered company or firm with a proven record in industrial operation and manufacturing practices.
- Must demonstrate financial stability and capacity for the investment needed for the installation and commissioning of the pellet plant which meets the required minimum production quantity and standards.
- Must be willing to abide by ICIMOD's production target and end-use guidelines for at least 3 years.
- Must provide a manufacturing and end-use plan for the agricultural crop residue/paddy straw pellets.
- Must provide a detailed timeline (from procurement to commissioning) including the sub-activities to be undertaken, including the areas where APPLICANT(s) require the technical assistance of ICIMOD.
- Must have a sufficiently skilled workforce capable of commissioning and operating the pellet plant to produce agricultural crop residue/paddy straw pellets. The workforce should be willing to implement knowledge and follow instructions shared during capacity building on pellet production and organising the production floor. The workforce should be GESI friendly and inclusive as much as possible.
- Must demonstrate financial stability and the capability to maintain an inventory of the minimum required spare parts required for uninterrupted agricultural crop residue pellet production.
- Must agree on the payment modality of ICIMOD, while receiving the seed funding.

ICIMOD shall select and award the contract to the APPLICANT(s) based on the assessment which best meets the above criteria.

10. Submission requirements

Interested APPLICANT(s) are requested to submit their RFP, including the following details:

- **A cover letter** expressing interest in providing specific services to ICIMOD.
- **Company profile:** Including company background and years of experience in the manufacturing/production sector.
- **Technical proposal:** Detailed description of the pellet plant, including technical specifications, materials, features, and compliance with the required standards as mentioned in the annex.
- **Financial proposal:** Costs for the pellet plant with detailed breakdown of costs for supply, installation, commissioning, capacity building for employees, and the terms of payment to the pellet plant supplier.
- **Available land:** Proof of availability of the sufficient land area for pellet manufacturing.
- **Project timeline:** Estimated time required for installation and commercial commissioning of the pellet plant.
- **Organisation profile:** APPLICANT(s) are requested to provide detailed information of their organisation, describing the nature of their existing business, field of expertise, certifications, and accreditation.
- Company Registration and VAT certification
- Tax clearance of FY 2079/80 or 2080/81 (if applicable).

11. Validity of the application

The APPLICANT(s) shall submit their application which shall remain valid for up to six months after the application deadline. ICIMOD may solicit the consent of the APPLICANT (s) for an extension of the period of validity of the response, if required. In the event any APPLICANT(s) refuses to extend the response validity as requested by ICIMOD, ICIMOD shall terminate the processing of their respective responses.

12. Evaluation

The service provider will be selected based on the highest-ranked technical proposal (60% weightage) and lowest-cost financial proposal (40% weightage). The service provider will be selected based on the highest cumulative scores obtained in the technical and financial proposals using the following formula:

- Technical score = Score obtained based on technical proposal (total 100)
- Financial score = Score obtained based on financial proposal (total 100)
- Total score = 60% of technical proposal + 40% of financial proposal

The service provider scoring the highest score based on the criteria will be awarded. However, the service provider should score at least 70 points in the technical proposal.

13. Costs and expenses towards response to RFP

The APPLICANT(s) shall be responsible for all costs associated with the preparation of the application and execution of the documents related to this RFP. ICIMOD shall not be responsible in any way for such costs, regardless of the conduct or outcome of the selection process.

14. Modification and withdrawal of the proposal

The APPLICANT(s) may withdraw the proposal after submission, provided that the written and signed confirmation notice of the withdrawal is received by ICIMOD prior to the deadline specified for the submission of the proposal. Otherwise, no proposal shall be modified or withdrawn in the interval between the deadline and the expiration of the proposal validity specified by the APPLICANT(s) in the submitted proposal.

15. Timeline and deliverables

The APPLICANT(s) should propose the main and sub-activities for the proposed task, milestones, detailed log frame, detailed consultative measures, adoptive measures, impact indicators measures, targets, and delivery date to achieve the project output.

Deliverable	Number of Months	YEAR/QUARTER							
		2025				2026			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Procurement of the machine and set up of the sustainable feedstock supply chain	6								
Installation, test production of crop residue pellets, capacity building, feedstock and pellet supply chain set up and strengthening	12								
Pellet production (minimum 500MT/year) from agriculture crop residues and ensure its end use, creation of the biomass pellet value chain and support; demonstration during the stakeholders' visit organised by ICIMOD.	Till end of 2026								

16. Proposal submission

The APPLICANT(s) are required to submit the soft copy of their complete RFP via email to **consultancy.int@icimod.org by 5 PM (Nepal Standard Time), 3rd February 2024**. Two separate files of proposals should be submitted – ONE technical and ONE financial, and each page of the response should be duly stamped and signed by the authorised signatory in whose favour the Power of Attorney is issued.

17. Ethics

The APPLICANT(s) will be required to take all the necessary actions to handle the collected data responsibly (see ICIMOD [Data Policy](#)) to ensure data privacy, anonymity, and confidentiality. The APPLICANT(s) must adhere to the in-country regulations while executing the project.

A. Our commitment to the prevention of sexual harassment

ICIMOD is committed to the prevention and redressal of sexual harassment in the workplace and promoting the welfare of children, young people and adults and expects all staff, consultants and volunteers to honour this commitment. ICIMOD will do everything possible to ensure that only those who are suitable to work within our values are selected to work for us.

B. Confidentiality/non-disclosure

All material issued in connection with this RFP shall remain the property of ICIMOD and shall be used only for the purpose of this exercise. All information provided shall be either returned to ICIMOD or securely destroyed by unsuccessful applicants at the conclusion of the procurement exercise.

During the performance of the assignment or at any time after expiry or termination of the agreement, the APPLICANT(s) shall not disclose to any person or otherwise make use of any confidential information which they have obtained during this agreement relating to the partner organisation/ICIMOD, the respondents, or otherwise. The APPLICANT(s) will be required to sign a non-disclosure / confidentiality agreement as part of their undertaking of this work.

C. Intellectual property, copyright, and ownership of all prepared information

The APPLICANT(s) shall retain all rights to pre-existing (background) intellectual property or materials used by the APPLICANT in the delivery of this study. All arising intellectual property, ideas, materials, processes, or processes formed in the contemplation, course of, or as a result of this study shall be passed to ICIMOD without restriction.

The APPLICANT(s) shall warrant that all arising intellectual property, materials and/or products produced in pursuit of this study shall be original and shall not infringe on any third party's claim. All technical or business information, in whatever medium or format, originated, collated, or prepared by or for the APPLICANT(s) in the contemplation, course of, or as a result of this assignment shall be transferred to ICIMOD without restriction on completion and shall not be used by the APPLICANT(s) for any other purpose without the express written permission of ICIMOD.

Copyright of all arising documents, data, information, or reports produced by the APPLICANT(s) under this agreement shall belong to ICIMOD and the APPLICANT(s) jointly and will be passed to ICIMOD without restriction. Any knowledge products produced by ICIMOD such as documents, data, information, and reports shall solely belong to ICIMOD and may not be used by the APPLICANT(s) for any other purpose other than in conjunction with this assignment, without the express written permission of ICIMOD's Head of Programme Funding.

ICIMOD reserves the right to accept or reject any or all RFP/proposals received without providing any reason whatsoever.

18. (The covering letter should be on the Letterhead of the APPLICANT)

Date:

To,

Attn.: [Procurement]/[Designation], ICIMOD, Nepal

Sub.: Technical proposal for collaboration with ICIMOD in the agriculture crop residue pelletisation project as industrial partner.

Ref.: RFP No., date

Dear Sir,

We, the undersigned [Insert the name of the “APPLICANT”] having read, examined and understood in detail the RFP, we confirm that neither we nor any of our Parent Company/Affiliate/Ultimate Parent Company has submitted a response directly or indirectly to the previously mentioned RFP other than this response.

1. We unconditionally accept the RFP issued by ICIMOD, as amended. To signify our acceptance, we have signed, stamped the technical proposal, and enclosed it with our response. We confirm that the provisions of the RFP will be binding for us.
2. We have submitted our response strictly as per the provisions and formats of the RFP, without any deviations, and without mentioning any assumptions or notes.
3. We hereby unconditionally and irrevocably agree and accept that the decision made by ICIMOD with respect to any matter regarding or arising out of the RFP shall be binding for us. We hereby expressly waive all claims with respect to the RFP process. We confirm that there are no litigations or disputes against us, which materially affect our ability to participate or function under the obligations of the RFP.
4. Details of the contact person:
 - Name :
 - Designation :
 - Address :
 - Contact numbers :
 - Email ID :
5. We are enclosing herewith the entire application containing duly signed formats in electronic format sent via email to ICIMOD as per the RFP for ICIMOD’s consideration.
6. It is confirmed that our response is consistent with all the requirements for submission as stated in the RFP and subsequent communications from ICIMOD, if any.
7. The information submitted in our application is complete, strictly as per the requirements stipulated in the RFP and is correct to the best of our knowledge and understanding. We would be solely responsible for any errors or omissions in our submitted application.

8. We confirm that all the terms and conditions of our response are valid for acceptance for a period of six months from the submission deadline.

We confirm that we have adhered to the organisational values and norms and have not taken any actions that could be deemed unlawful. We understand that you are not bound to accept any response you receive.

Yours sincerely,

[Name, Designation and Signature of Authorised Person]

19. Information to be submitted by APPLICANT(s)

S.N	DETAIL	REMARKS
1	General detail	
	a. Name of organisation	
	b. Organisation's address	
	c. Contact detail of organisation and representative <i>[Name/Email/Phone/Cell Phone]</i>	
2	Area and location selected for pelleting facility	
	a. Address of the proposed location	
	b. Space availability (own or rental) <i>(Kindly provide a map of the specific location)</i>	
	c. Why do you plan to run the pellet plant? i. For use in own industries or for commercialisation	
	d. If it is for use in own industries what is the nature of the industry or enterprise where you are planning to use the pellets?	
	e. What is the nature of fuel you are currently using?	
	f. Are you interested in co-firing the pellet with coal or do you plan to use a fossil fuel-free substitute? <i>(Kindly provide information on fuel substitution)</i>	
	g. Willingness to use pellet fuel in industries or enterprise? <i>(Kindly provide the nature or types of industries you are willing to use)</i>	
	h. Do you have any agreement with the end-user of the biomass pellet supply? <i>(Kindly provide information on the nature of the agreement)</i>	
	i. Based on the agreement with the end-users, do you have any information on the minimum daily pellet production? <i>(Kindly provide estimated consumption per day)</i>	
3	Technology - general	
	a. Ownership of technology <i>(Kindly indicate if the technology is owned by you or licensed by someone else. If owned by you, kindly indicate if it is patented/under patent)</i>	
	b. Status of plant capacity (tonnes per day)? <i>(Kindly indicate the plant capacity)</i>	
	c. Details of the pellet plant <i>(Kindly provide details of each component of the pellet plant that you have provided)</i>	
	d. Detailed plant layout <i>(Outline the area required for the plant and whether it can be customised in the available space)</i>	
4	Agriculture crop residue collection centre	

	a. What is your understanding/knowledge of agriculture crop residue as feedstock for pellet production? <i>(Kindly provide the type of agriculture crop residues you plan to use)</i>	
	b. Distance of pelleting facility and agriculture crop residue? <i>(Kindly provide the minimum and maximum distance)</i>	
	c. How do you manage feedstock for pellets? - Direct self-harvesting from field: are you planning to bale it or collect it in a loose way? - Through aggregator/supply chain: are you planning to procure it in bales (cylindrical/cubical) or loose?	
	d. Estimated cost of agriculture crop residue/feedstock per kg?	
5	Technology – specification	
	a. Type of pelletisation process <i>(Kindly indicate if it is a batch process or continuous process)</i>	
	b. Rate of production of pellets <i>(Kindly indicate based on tonnes/day)</i>	
	c. Production parameters: Temperature (°C)	
	d. Proximate/ultimate analysis of crop residue pellets produced	<i>Kindly provide laboratory test reports wherever possible</i>
	e. Bulk density of crop residue pellet	
	f. Dimension of crop residue pellet	
	g. Fines (small particles from pellet processing)	
	h. Product conversion efficiency	
	i. Types of binding/adhesive/compression system used for pelletisation	
	j. Mandatory spare parts for at least 2 years of continuous operation <i>(Kindly provide the list of “the minimum requirements” spare part inventory)</i>	
6	Business information	
	a. What is the plant capacity? <i>(Kindly indicate tonnes per year)</i>	
	b. Detailed cost of components of the selected pellet line <i>(Kindly provide a detailed cost breakdown including installation)</i>	
	c. Detailed cost of installation.	
	d. Cost of operation and maintenance (O&M) of selected pellet line Please provide a comprehensive breakdown that includes all relevant categories, such as personnel, energy costs, consumables, spare parts, and any other associated expenses.	
	e. Do you have skilled human resources for the pellet production and supply chain management?	
	f. After-sales service and warranty/guarantee <i>(Kindly provide detailed information on the availability of your service providers or distributors)</i>	

	<p>g. What is your expectation from ICIMOD? <i>(Kindly provide information on technical/financial/coordination support expected)</i></p>	
--	--	--