

Biochar & Climate Finance: A New Playing Field for CAs



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Biochar is changing the game. This oxygen-free substance rich in carbon, which is formed after heating biomass, is much more than a scientific footnote. It promises actual financial prospects with real environmental value. In the case of Chartered Accountants, biochar provides access to carbon accounting, financial modelling, project assurance, and governance work, which were limited or niche a few years ago. CAs are able to develop reliable measurement systems, design viable projects, establish appropriate controls, and test claims of sustainability with true rigor. India has vast amounts of farm waste and is taking action on climate change. The idea of biochar projects is becoming a reality. Chartered Accountants are well positioned to inject financial discipline, transparency, and credibility into this emerging climate finance arena.

Introduction

Sustainability is no longer confined to conference rooms; it is now a business strategy. Enter any business boardroom, and you will hear discussions about ESG goals, carbon neutrality, and climate plans. Biochar is one of the climate solutions that has gained significant traction. In simple terms, biochar is produced when agricultural or forestry waste is heated in a low-oxygen environment, a process known as pyrolysis. This process converts short-lived plant carbon into a stable form that can remain in soil for hundreds of years.

Biochar is typically applied in cases where crop residues would otherwise be burned or left to decay, releasing carbon dioxide into the atmosphere. It is pursued because it locks carbon away permanently, improves soil health, and creates a measurable, financeable climate benefit.

Researchers discuss the health of the soil and the storage of carbon. These aspects are important. However, there is another facet that is equally important, and it concerns the professionals in

finance and accounting, namely, the financial potential of biochar.

For Chartered Accountants, biochar is not merely an environmental concept, it is a professional opportunity. The space involves reporting and verification systems, carbon credit trading, frameworks, and financial structures. Real work. Real complexity. A Biochar project offers a new professional footing on which CAs can actually add value, as India transitions to the low-carbon development phase.

The majority of organizations getting into biochar do not have the financial infrastructure or accounting skills. They are aware of the environmental narrative and are ecstatic about carbon credits. However, they lack mechanisms to measure, report, and verify claims. They do not have financial models to present investors with returns. They require governance frameworks to ensure everything is done right. This is the gap that CAs fit perfectly.

Understanding Biochar Beyond the Science

Biochar is produced when biomass such as crop residues,

agri-waste, and forestry by-products are heated through pyrolysis, converting unstable organic carbon into a stable form suitable for long-term soil storage. After it is deposited in soil, it lasts hundreds of years, which is why it has become one of the most persistent carbon sequestration practices in the current market. This is the very reason biochar is so highly regarded by global carbon markets.

But, beyond the science lies an emerging financial story. Biochar projects can tap into:

- Voluntary carbon markets
- Green financing instruments
- ESG-linked funding
- Corporate sustainability budgets
- Indian government incentives aligned with its climate commitments

All these demand transparent accounting, verification, due diligence, and strategic financial planning that Chartered Accountants have in abundance.

Biochar Production Process



Why Chartered Accountants Should Pay Attention

Biochar presents some unique opportunities for Chartered Accountants (CAs). Companies are on the lookout for accountants who can help them navigate this emerging field.

1. Carbon Accounting and Measuring Sequestration

The amount of carbon that will be sequestered in the soil will allow biochar projects to obtain carbon credits. It is essential to support this with solid data since, unless such projects are measured properly, the projects will not have a strong financial foundation. CAs have the opportunity to establish carbon accounting systems to trace the flow of carbon in biochar. This is accomplished by measuring baseline emissions, projecting the emissions under different scenarios, and quantifying the differences.

It is important to keep in mind aspects such as the quality of biochar, the condition of soil, the rate of its use, and the process of decomposition of biochar. In addition, adherence to international standards of the methodology should be observed. Checks on carbon-benefit calculations are what allow drawing the line between credible projects and questionable projects.

A review conducted by a third-party CA will provide the credibility that investors

require. Adherence to global standards like Verra, Gold Standard, etc. enhance market confidence. The reason these standards exist is that carbon buyers demand assurance, and credibility would result in superior prices.

2. Financial Modeling That Reveals the Truth

Biochar initiatives can be expensive in terms of investment. Pyrolysis equipment costs, feedstock supply chain building, and the development of storage infrastructure are costs. There will also be a need for some funds for monitoring systems. Initial projects can require capital of several crores. Shareholders would like to see comprehensive financial forecasts. They would wish to understand the payback period, projected ROI, and what can occur in the event that carbon prices decrease. They also need to understand the project's sensitivity to changes in different situations.

The best CAs are the ones who construct models that are more realistic and paint a picture, chart cash flows throughout the project lifespan, perform payback analysis, and consider sensitivity to the price of carbon and cost of biochar. They are able to tabulate various revenue cases. Good CAs are well aware of biochar markets, past carbon prices, feedstock dynamics, seasonality,

and policy adjustments, thus helping them to make conservative assumptions. Proper prediction of carbon credit revenue or otherwise is the difference between success and failure in the economics of a project, and that is where CAs show their value.

3. Governance and Internal Controls

Carbon credits are now financial assets which need to be properly governed and controlled, with audit trails in place to ensure there is no fraud and error. CAs are able to build control measures for generating and tracing carbon credits. Biomass collection, monitoring facility processes, and validating the quality of results have to be documented. Storage conditions are also of importance, and credit generation and sales should be put on record.

The biomass purchase audit trail is significant because purchasers would like to know the source of the biomass. This can be achieved by knowing which sources are more appropriate, and with records of what was used, a certain degree of transparency can be established. Checkpoint-based approval workflows can be used to prevent errors and fraud, such as duplicate credit claims or unauthorized sales. Strong safeguards are required to prevent double counting.

Most biochar enterprises are technically capable but operate without dedicated finance or compliance leadership. Chartered Accountants can bridge this gap by designing audit-ready financial and governance systems from the outset, ensuring transparency, control, and regulatory readiness as the business grows.

4. Assurance of Sustainability and ESG Claims

Firms are seeking biochar offsets to their ESG commitments and they require independent verification. That is where Chartered Accountants come in. It is important to ensure that the claims made on sustainability are valid. There are companies that may have genuine intentions but may not have adequate documentation, and others may be overstating the benefits. These problems can be revealed by an independent review of a CA.

There should also be a check that the valuations of carbon credits are fair to buyers and accurate. CAs review the methodologies of such valuations to be fair. Going through claims on the environment can assist in spotting cases of greenwashing, which can be harmful in terms of reputation. As expectations around sustainability reporting continue to increase, assurance provided by CAs offers organisations credible, standards-based confidence in their environmental disclosures.

5. Transaction Advisory and Due Diligence

Investors need thorough due diligence when looking into biochar opportunities. CAs provide value in several ways as they develop realistic projections of carbon revenue based on the actual conditions

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of the project, providing an honest assessment of the potential output and how it stacks up against competitors. They evaluate policy risks that could impact the economics, including whether new regulations might enhance value or if the removal of support could adversely affect the project.

Chartered Accountants also scrutinize the fairness and enforceability of carbon credit sales agreements, ensuring clients fully understand the terms and obligations involved. They assess the financial health and competence of technology providers through thorough due diligence on their finances. Furthermore, they identify hidden liabilities such as environmental remediation costs, regulatory penalties, and possible contractual disputes, uncovering these risks early through comprehensive due diligence before any investment is made.

The Emerging Biochar Carbon Credit Ecosystem in India

India produces millions of tons of agricultural residues annually, a volume that is enormous. The issue of sourcing biomass is not the real problem; the real issue is to properly convert these residues into biochar and verifiable carbon credits. At

present, a significant part of this residue is burned. Farmers tend to burn stubble and the result of this burning is enormous air pollution, one of the major environmental problems. Although burning is quick and inexpensive, the residue may be collected and converted into biochar, which provides a superior solution: once collected, it may be converted, sold, and credits can be generated. This is the point in the value chain where timing becomes critical.

Biochar projects are typically initiated during post-harvest periods when large quantities of crop residue are generated. If these residues are not collected and processed immediately, they are either burned or decompose naturally, releasing carbon back into the atmosphere. Converting this biomass into biochar at this stage ensures that emissions are avoided and long-term carbon storage is achieved.

This not only offers money to the farmers but also has environmental advantages. These projects have the ability to produce various sources of revenue. Selling biochar to industries and farmers could generate product revenue as well as enhance soil health. Carbon credits can also be traded to give extra revenue. Other co-benefits such as higher crop yields, fewer fertilizer requirements, and greater water retention have been found to provide more returns. This is a revenue model that supports India's commitment, increases farmers' earnings, reduces stubble burning, in turn decreasing emissions.

To work efficiently in this field, there are various advancements that CAs can use such as the availability of accounting standards of carbon credits in financial statements, particular Ind AS advice on recognizing, measuring, and valuing of credits, and elaborate sustainability reporting frames that involve biochar reporting. It would

also be good to fix standards of assurance for environmental claims. These are the areas where ICAI can take the lead in influencing national structures as it has done in the adoption of IFRS-based accounting practices.

The CA's Unique Advantage

CAs are not professionals limited to a single field. They offer a blend of various competencies that sets them apart in this very industry.

CAs can convert technical standards which are complex and make them user-friendly to businesses. The tech side is assigned to engineers, yet in most cases they are not able to combine that knowledge with a sound financial background. Accounting compliance is at a different level compared to lawyers' knowledge of regulations. CAs blend all three: an understanding of the technical side, a good knowledge of laws, and financial shrewdness.

CAs excel when it comes to financial modelling. They have developed innumerable models of different industries. They are good at detecting when numbers fail to add as they should and narrating financial stories in a manner that will resonate with investors and boards. When something is wrong in any given financial model, CAs understand how to get into the details of the matter. They are aware of how to come up with systems capable of surviving rigorous audits. Compliance is not just a matter of box ticking, but of understanding why rules are in place. For Chartered Accountants, professional responsibility carries huge weight. Every sign-off is more than a procedural requirement; it is a direct reflection of their credibility, integrity, and professional reputation. Because of this, CAs exercise the highest standards of diligence, accuracy, and ethical judgment in every certification they provide. That credibility is achieved through

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decades of maintaining standards and being subjected to actual penalties in terms of cutting corners. It is important in the carbon markets where problems such as greenwashing and exaggerated claims are real-world problems.

Governance experience and risk management are areas where CAs have ample experience. They serve in audit committees, encounter actual instances of control failures and have learned what actually works and not what merely looks good on paper. They are exposed to the practical side of governance systems and control through practical experience.

CAs accumulate an industry experience that is usually ignored. They take part in all stages of project development. They are able to install accounting systems at early stages, develop controls against fraud, design financial models that support scrutiny, offer audit-ready verification, and conduct due diligence which can identify potential issues at their early stages before they become serious. That is a complete value chain coverage that is not very common. The combination of financial expertise, regulatory acumen, auditing credibility, experience in governance, and cross-industry viewpoint is fairly uncommon in professional services.

In the biochar sector, projects must address financial modelling, assurance requirements,

compliance with carbon-market standards, and professional accountability. Chartered Accountants are specifically trained in financial analysis, assurance frameworks, internal controls, and statutory responsibility, which enables them to bring structure, reliability, and traceability to these engagements. This is not a marketing claim, but a reflection of how the profession is formally structured to support high-integrity climate and carbon-market projects.

Conclusion: A New Chapter for Climate-Aligned Finance

Biochar is a rare case where there is an overlap in environmental impact and financial value. In its current path to low-carbon development, India will see more industries seeking to enter the carbon markets, diversify their revenues, and improve their ESG reputation. Chartered Accountants are uniquely positioned to guide them.

This profession can play a decisive role in biochar project implementation and monetization, whether by carbon accounting, assurance, due diligence or financial modelling. More significantly, CAs can help ensure that climate-positive projects are based on integrity, transparency, and sound financial judgement.

Biochar is not simply an innovation in the environment, but a gateway to a new form of work, a new market, and new responsibilities of our profession as we begin to look into the future. And if approached thoughtfully, it can be one of the numerous means through which Chartered Accountants can make contributions to economic development and environmental responsibility.

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