

# Concept Note-Carbon Registry in India

## 1. **Background:**

Climate change is defined as the shift in the average global temperature due to increase in Greenhouse Gases in the atmosphere, consequences of which include, global warming, melting of ice-caps, rise in sea level, acidification of oceans, etc.

Climate change is a global phenomenon and to deal with the same, initiatives have to come from the unified global community and not from a few countries. One of the recent landmark initiatives of the international community on climate change is the Paris Agreement (PA) of 2015 under the UNFCCC. Adopted in December 2015, it has, of now, 195 signatories, making it the most significant agreement for action by all countries on climate change. Under the agreement, countries have committed targets for reducing the greenhouse gases which are termed as Nationally Determined Contributions (NDCs).

Article 6 of the Paris Agreement, contains key provisions on mitigation, and development of carbon market which could help the countries in realizing their NDC targets. Article 6 lays the foundation of the international carbon market paving the way for International Transfer of Mitigation Outcomes (ITMOs) amongst countries.

PA of UNFCCC does not bar any country to develop its own internal carbon market. On the other hand, it may be advantageous to trade ITMOs by linking the national carbon markets of different countries. With this foresight in view, NCCF has embarked upon an exercise to develop a Carbon Registry in India (CR-I).

## 2. **Introduction and History of Emission Trading System:**

2.1 Definition: Emission Trading System can be defined as a trading platform to reduce carbon emissions through trade the carbon credits generated by an entity by reducing its GHG emissions.

2.2 Carbon Tax and Emission Trading System:

2.2.1 Carbon Tax and Emission Trading System: Both Carbon Tax and Emission Trading System are seen as viable options to reduce emissions. But both have different characteristics, which may suit different requirements.

<b>Characteristic</b>	<b>Carbon Tax</b>	<b>Emission Trading System</b>
Regulatory authority	Government	Government and Private
Administrative Burden	High	Low
Target for Abatement	Product or Activity	Sector/Industry
Cost of Abatement	Fixed	Flexible cost minimization
Carbon Price	Certain	Uncertain
Impact of Carbon Price	Constant	Distributional

2.3 Types of Emission Trading Systems:

- 2.3.1 **Compliance:** In a compliance Emission Trading System, an overall absolute limit on actual emissions is put, and year-wise target for the same is set. Permits/allocations are given out in the market either through auction or free, depending upon the programme and the importance of the sector/industry on which the cap is put. Example: European Union Emission Trading System (EU-ETS)
- 2.3.2 **Voluntary:** As the name suggests, in the voluntary systems, there are no targets or cap that a sector or industry or entity has to comply with. Credits generated are based on the performance of the project activity in reducing emissions.  
Example: Voluntary Carbon Standard (VCS)

2.3.3 Differences between Compliance and Voluntary Emission Trading Systems:

<b>Characteristic</b>	<b>Compliance</b>	<b>Voluntary</b>
Regulatory Authority	Government/Convention	Private Entity (Generally)
Administrative Burden	High	Low
Target Method	Cap and Trade	No Cap/Voluntary
Target Achievement	Fixed	Flexible
Credits	Allowances and project-based Credits	Carbon Credits/Offsets
Carbon Price	Floor price can be regulated	Regulated completely by market

2.4 **Existing registries worldwide:**

One of the earliest examples is from the United States of America, where in the 1990s, the Clean Air Act, introduced an emission trading programme for Sulphur Dioxide Emissions.

The USA also houses the world’s first Voluntary Carbon Registry, the American Carbon Registry (ACR).

Since then, many more countries and regions have adopted emission trading systems and or carbon tax for an effective reduction in net greenhouse gas emissions. As per the World Bank’s report “State and Trends in Carbon Pricing 2017”, there are 45 initiatives (in 2017) currently implemented across the globe which cover roughly 15% of the global emissions.

A few major players in the domain of emission trading systems are:

- **Clean Development Mechanism (CDM):** CDM of the UNFCCC Kyoto Protocol allows developing countries to prepare and implement projects that reduce emissions, and earn carbon credits, which are used by Annex 1 countries to offset their emissions. There are about 7,800 projects registered in the CDM database.
- **European Union Emission Trading System (EU-ETS):** It is the largest emission trading programme covering 28 European countries plus Norway, Iceland and Liechtenstein. It covers 45% of the Emissions in the European Union.
- **Voluntary Carbon Standard:** Considered the largest voluntary emission trading system, it came into being in 2008. The targets are not binding but completely voluntary allowing organisations, industries, etc to offset their emissions and become carbon neutral.

Not all emission trading systems have been successful, and some even have discontinued. One prominent example in this regard is that of Chicago Climate Exchange (CCX) which closed down because of the continuously falling prices of carbon.

In 2018, some new programmes are being relaunched, for example, Kazakhstan Emission Trading System, and others are graduating out of the pilot phase, e.g., as Mexico ETS. China ETS launched in 2017 has the potential to be the largest contributor to the emission trading systems since China is the

largest emitter with a global share of 29%.

2.5 Existing trading systems in India: Three Main emission trading schemes/programmes are functioning in India are described below. territory.

- 2.5.1 Perform Achieve and Trade (PAT): PAT with guidelines from Bureau of Energy Efficiency (BEE) in March 2012 and started functioning in 2013. Presently, PAT scheme is covering 9 (8+ railways) out of 15 energy intensive sectors in its Phase 2. The scheme does not focus on absolute emissions but does focus on energy efficiency targets in these industries. Saving of energy equivalent to 1 ton of oil generates 1 Energy Saving Certificate (ESCert) which can be traded by overachievers with underachievers on platforms such as Power Exchange India Limited (PXIL) and Indian Energy Exchange (IEX). The registry is maintained by BEE.
- 2.5.2 Renewable Energy Certificates (REC): It is a non-ETS system in India for sale and purchase of renewable energy credits, which are generally traded in case of fulfilment of Renewable Purchase Obligations (RPO) of the entities. It was launched in 2010. The verification of REC is done by the State Electricity Regulatory Commission (SERC) and registration is done by the Central Electricity Regulatory Commission (CERC).RECs are traded on the same platform as ESCerts, i.e. on PXIL and IEX.
- 2.5.3 Pilot Emission Trading Programme (PETP): With the aim of maintaining air quality as per National Ambient Air Quality Standard, PETP began in 2011, with primary focus on reduction in the particulate matter rather than greenhouse gas emissions with Central Pollution Control Board (CPCB) releasing guidelines for Continuous Emission Monitoring System (CEMS). From a total Budget of INR 360 Cr, 95% of the budget was allocated to CEMS. It was implemented in 3 States, namely, Tamil Nadu, Gujarat and Maharashtra. Number of industries targeted were 100. Permits were to be allocated by the State Pollution Control Board.

### **3. Need and Benefits of Carbon Registry:**

3.1 Need for a carbon registry in India:

- 3.1.1 Database Creation: for effective tracking of emission reduction and removal enhancement, it is essential to create a database of the projects and their verified emission reduction or removal performance.
- 3.1.2 Market mechanism development: Verified emissions/carbon credits would create a market-based supply and demand for trading carbon as a commodity.
- 3.1.3 Follow up with NDC targets: With an ambitious target of reducing emission intensity by 30-35% and increasing carbon sink by 2.5-3.0 billion tonnes of CO<sub>2</sub>eq, carbon registry will help the nation in achieving the target by developing a vibrant market for the trading of carbon credits ensuing from verified project activities.

3.2 Benefits of carbon registry:

- 3.2.1 Promote Greenhouse Gas reduction: With country-specific methodologies, carbon registry shall promote the development of projects for net greenhouse gas emission reduction which would contribute to the global efforts of mitigating climate change.
- 3.2.2 Listing and Trading: the Registry shall allow/permit projects, processes and methodologies relevant to emission reduction or removal enhancement to be developed, listed, monitored, and traded. The verified carbon credits will be traded among the entities such as project proponent, broker and intermediaries, etc for the purpose of offsetting emissions or re-sale of credits to generate revenue.
- 3.2.3 Reduction in Abatement cost: the voluntary registry shall lead to a reduction in abatement cost of emissions by encouraging and allowing competitive trading of carbon credits.

- 3.2.4 **Co-benefits:** Apart from the benefits of reduction in net greenhouse gas emissions, the projects shall have other benefits which can be broadly classified into the following three categories:
- 3.2.4.1 **Environmental benefits:** some of the environmental benefits include, reduction in pollution, cleaner air, improved water table, reduction in noise pollution, and conservation of biodiversity including wildlife
- 3.2.4.2 **Social benefits:** development of projects and involvement of the people and communities, can lead to improvement in health, poverty alleviation, social welfare, skill development and added employment opportunities. It thus increases the adaptive capacity of the communities towards climate change.
- 3.2.4.3 **Economic benefits:** With the move towards a low carbon economy, it helps the industry to move on a cleaner path, and thus enable the country to achieve sustainable economic growth.

#### **4. Principles:**

*Adapted from ISO standard 14064-2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements.*

- 4.1 **Relevance:** select the GHG source, GHG sinks, GHG reservoirs, data and methodologies appropriate to the needs of the user
- 4.2 **Completeness:** include all relevant GHG emissions and removals. Include all relevant information to support criteria and procedures
- 4.3 **Consistency:** enable meaningful comparisons in GHG-related information
- 4.4 **Accuracy:** Reduce bias and uncertainties as far as possible
- 4.5 **Transparency:** disclose sufficient and appropriate GHG related information to allow intended users to make decisions with reasonable confidence
- 4.6 **Conservativeness:** use conservative assumptions, values, and procedures to ensure GHG related emission reductions or removals enhancements are not overestimated.

#### **5. Definition and Objectives of Carbon Registry in India**

##### **5.1 Definitions:**

- 5.1.1 **NCCF Carbon Registry Project:** The Project aims at developing a registry to provide listing services for the Greenhouse Gas projects and providing a trading and tracking platform for the verified emission reduction or removal enhancement while providing country based methodologies for project-level GHG emission quantification
- 5.1.2 **IT Registry:** an electronic database that ensures accurate accounting of emissions (carbon credits) and transactions and tracking pertaining to carbon credits
- 5.1.3 **Trading Platform:** a market-based trading platform for carbon credits which puts a price on carbon based on the supply and demand of the credits

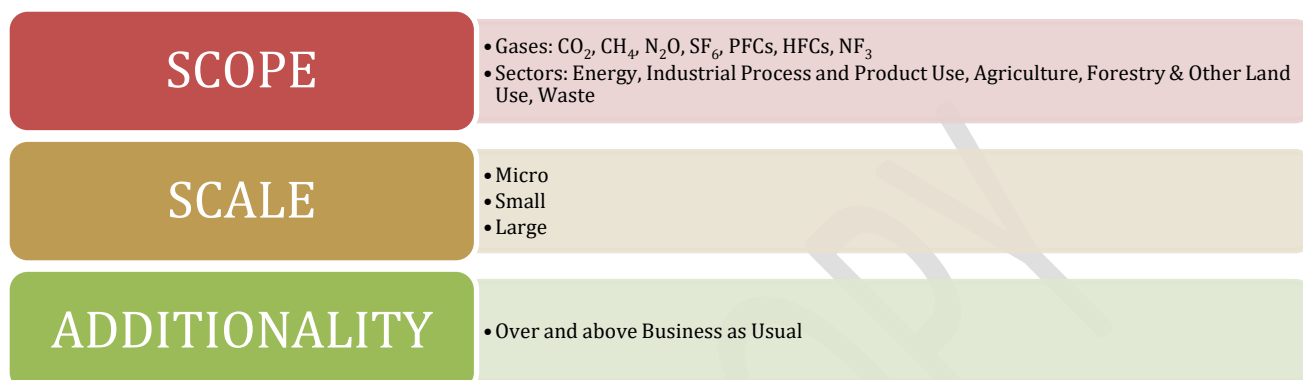
##### **5.2 Objectives:**

- 5.2.1 **To increase domestic emission reduction and removal enhancement:** internalization of credit issuance would increase GHG emission reduction and removal projects and activities in the country
- 5.2.2 **To create voluntary carbon market:** to provide the owners, buyers and other intermediaries with a standardised platform for trading of carbon units
- 5.2.3 **To create a platform for new methodologies of Greenhouse Gas estimation:** focus on country-specific projects would lead to the development of specific methodologies which would be suited for the Indian market
- 5.2.4 **To monetize reduction benefits:** project proponent can sell the credit to generate revenue

- 5.2.5 **To reduce the overall cost of abatement:** Registry will entail a healthy carbon market with competitive entities, reducing the overall cost of abatement
- 5.2.6 **Create general awareness:** the presence of a national system would create awareness about issues related to climate change and the options to address them, not only among the corporates but also among the general public

**6. Designing Carbon Registry for India:**

Scope, scale and additionality.



**7. Stakeholders Involved in the Process:**

Stakeholder can be simply defined as an individual, group of individuals, or an organisation with a common interest, concerned with or affected by the operation of an organisation/system. The stakeholders' groups for Carbon Registry including but not limited to the following listing, are:



FIG 1: STAKEHOLDERS INVOLVED IN DEVELOPMENT OF CR-I

## 8. Development of Carbon Registry:

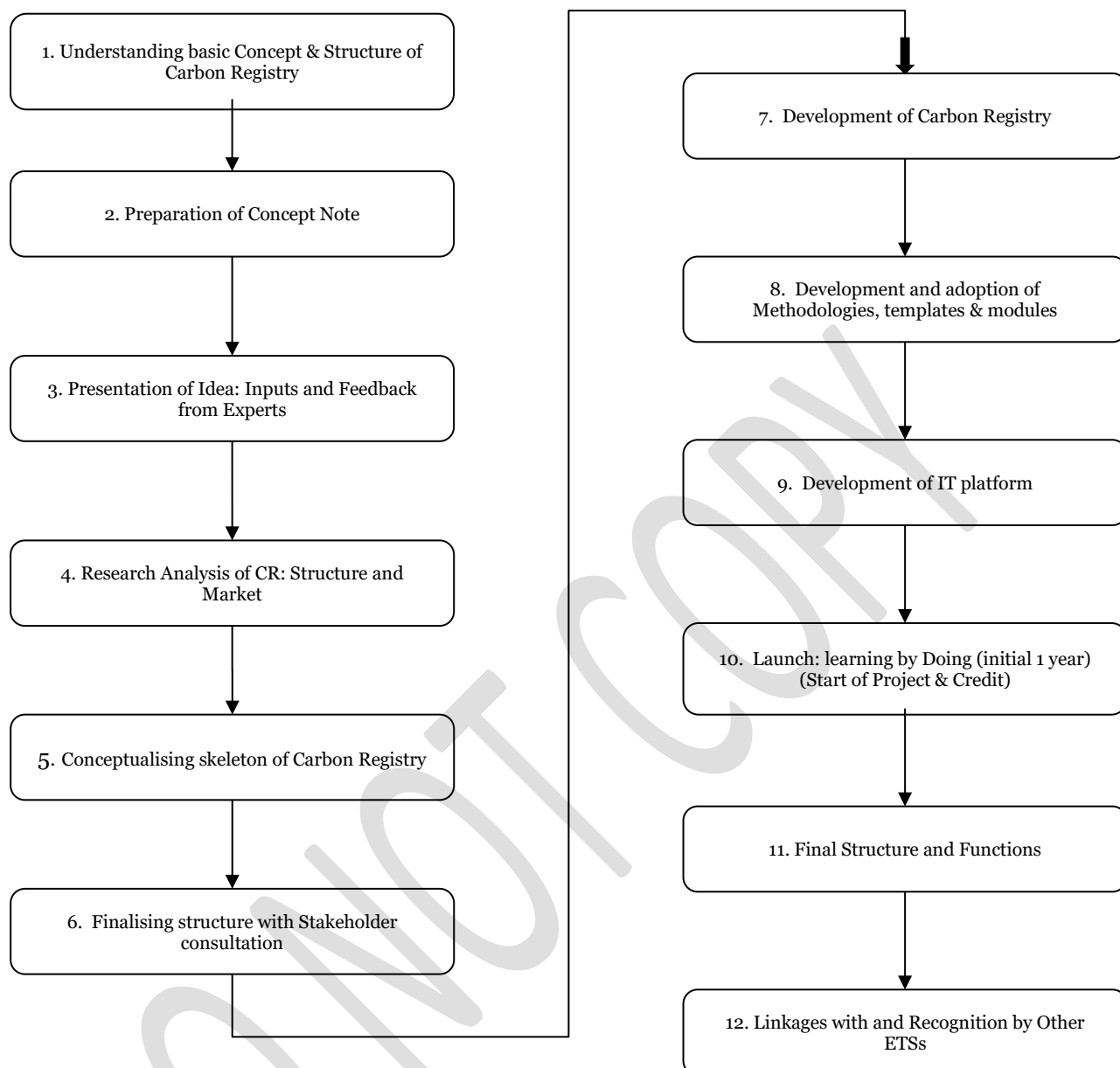


FIG 2: DEVELOPMENT PROCESS OF CARBON REGISTRY

### 8.1 Development Process Phase 1:

(Preparatory Phase) Phase 1 of development corresponds to the research and analysis Phase. (Step 1 to Step 4)

- 8.1.1 Step 1 Understanding the basic concept and structure of Carbon Registry: Phase 1 begins with the initial secondary research about the already existing Emission Trading programmes such as the Clean Development Mechanism (CDM), European Emission Trading Systems (EU-ETS), Voluntary Carbon Standard (VCS), etc along with the guidelines by World Bank on Emission Trading Systems.

- 8.1.2 Step 2 Preparation of Concept Note: A concept note pertaining to NCCF-Carbon Registry is made keeping in mind the concept and knowledge borrowed from the existing systems to suit the Indian context and requirements.
- 8.1.3 Step 3 Presentation of Idea to the experts: Putting the idea on the table serves two main purposes:
- Creating awareness about the programme from the initial stage
  - Getting constructive criticism and comments on the idea and plan of execution
- 8.1.4 Step 4 Research Analysis of Carbon Registry- structure and markets: Start simultaneously with Steps 2 and 3. Structural components of emissions trading systems and their markets in India are to be analysed to develop a suitable NCCF Carbon Registry.

## 8.2 Development Process Phase 2:

(Development Phase) it corresponds to developing the framework (structure and function), guidance document and IT component of the emission trading system. It includes Step 5 to Step 9

- 8.2.1 Step 5 Conceptualising the skeleton of Carbon Registry: after the analysis of structure and components required in the Indian context, a basic draft of structure and functional components is prepared to be subjected to stakeholder and expert group consultation
- 8.2.2 Step 6 Finalising the structure of Carbon registry with stakeholder consultation: the draft/skeleton is presented to the expert group and a dynamic dialogue commences for shaping the structure meeting the functional requirements of the Registry. As the dialogue progresses, it will lead to the development of the structural and functional components. It also includes finalising technical specifications of IT registry platform and the procedure to obtain the same.
- 8.2.3 Step 7 development of Carbon Registry: Step 7 in the process pertains to the formation of guidelines, templates, programme guide, etc for the Registry.
- 8.2.4 Step 8 Development and adoption of methodologies, templates and modules: After the guidelines for working of the registry are finalised, the NCCF will work on developing the methodologies for estimation and/or adoption of methodologies from other Emissions trading systems.
- 8.2.5 Step 9 Development of IT platform: development of platform would work simultaneously with step 8. The steps in development would vary as per the selection of the procedure to obtain the facility, i.e., develop from scratch, share with another platform, adapted from an open source software or outsource the registry service.

## 8.3 Development Process Phase 3:

(Functional Phase) Phase 3 pertains to the launch of registry and different phases of the operationalisation of the Carbon Registry. It includes Step 10 to Step 12)

- 8.3.1 Step 10 Launch of Registry, Phase 1: The pilot phase of the registry. All working protocols shall be validated, and the aim of the programme would also be to capture data and review the working process. This phase would last for 9-12 months.
- 8.3.2 Step 11 Final structure and Functions, Phase 2: changes could be made, which would depend on the problems faced and feedback received. Phase 2 of the registry is poised for 2-3 years.
- 8.3.3 Step 12 Linkages with and recognition by other Emission Trading Systems, Phase 3: The programme shall recognize and get recognized by other Emission Trading Systems which would

facilitate cross-platform trading and data exchange.

#### 8.4 Timeline for development phases of CR-I

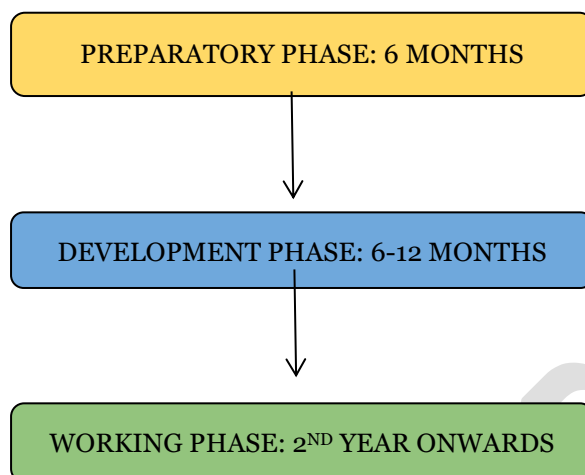


FIG 3: TIMELINES FOR DEVELOPMENT PHASES

### 9. Developing Framework of Carbon Registry:

#### 9.1 Components of NCCF-Carbon Registry:

- 9.1.1 NCCF: NCCF is a Non-profit organization which is responsible for developing and managing carbon registry. Functions of NCCF are mentioned in section 9.4.
- 9.1.2 IT Registry:
- Accounts: multiple categories of accounts can be opened with approval from the NCCF
- 9.1.2.1 Administrator: appointed by the NCCF with information to the regulator. The administrator is primarily responsible for operation (opening, closing, blocking and unblocking) of project proponent and broker accounts.
- 9.1.2.2 Project proponent account: Account held by the project proponent which gives him/her the information regarding the status of projects and credits. Owned by a biological entity on behalf of the organisation.
- 9.1.2.3 IMD account: Account held by Independent Methodology developer used for submission and approval of methodology.
- 9.1.2.4 Transactional Organisational account: account held by a third-party biological entity, whose primary aim is the transaction of carbon credits.
- 9.1.3 Database: Contains information about the project (such as location, size, type, etc), project proponents, credits issued and other relevant information pertaining to the system.
- 9.1.4 Trading platform: A trading platform developed by NCCF. The trading platform is essentially used to facilitate the transaction of carbon credits among project proponents and brokers.
- 9.1.5 External Database: Represents an external emission trading system or similar programme which may be linked with NCCF Carbon Registry in future. This would facilitate the exchange of information and/or cross-platform trading of carbon credits.



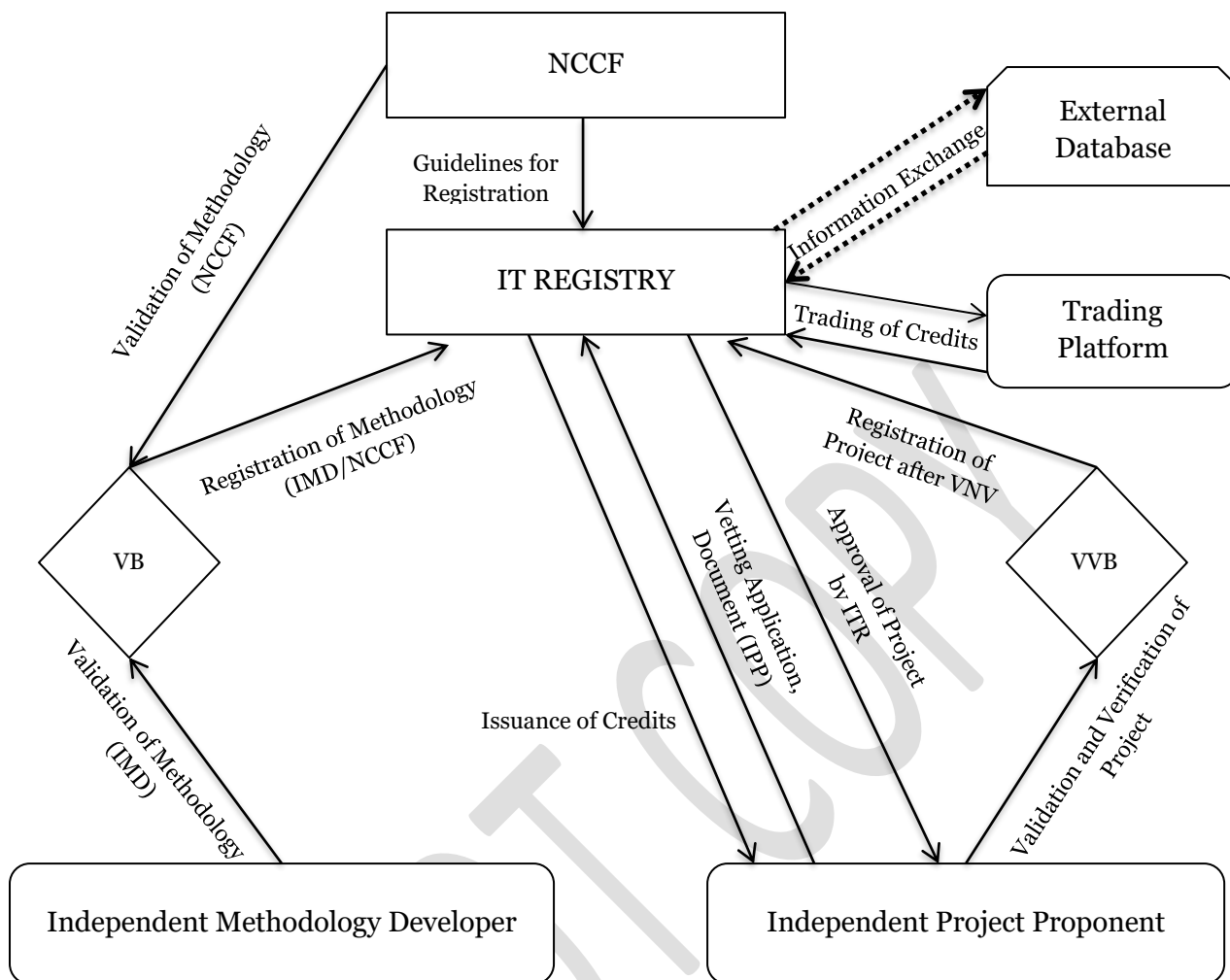


FIG 4: INDICATIVE STRUCTURE OF CARBON REGISTRY

Annotations Used in the Diagram:

- NCCF: Network for Certification and Conservation of Forest
- VB: Validation Body
- IMD: Independent Methodology Developer
- IPP: Independent Project Proponent
- ITR: IT Registry
- VVB: Validation and Verification Body
- VNV: Validation and Verification

**9.2 Important documents to be developed by NCCF:**

- 9.2.1 **CR-I Programme Guide:** Programme guide provides an overview of the CR-I programme, the objectives of Carbon Registry, Framework of Carbon Registry and the documents to be referred.
- 9.2.2 **Carbon Standard:** It provides rules and requirements governing the NCCF carbon registry programme along with which it also provides requirements for developing projects, validation, monitoring the projects, and verification of the projects and design requirements for

development of methodologies seeking approval and listing under the mechanism. It is supported by other documents as mentioned below.

- 9.2.3 Methodology Approval Process: provides guidelines to the independent methodology developers regarding the submission and approval process of methodology.
- 9.2.4 Validation and Verification Standard: the document lists the requirements for validation and verification body. This shall include requirements regarding competent personnel, expertise in domain and previous experience, etc.
- 9.2.5 Registration and Issuance Procedure: The document provide guidelines for registration of projects and issuance of verified emission reductions.
- 9.2.6 Project document template: project plan document shall be prepared by the project proponent in accordance with the guidance in the NCCF-Standard and as per the template provided by the NCCF to maintain consistency in the system.
- 9.2.7 Validation report template: validation report need to be in a particular template to maintain consistency and compatibility with the validation process of the project and consistency of the overall system. Validation report will be prepared by the validation body.
- 9.2.8 Verification report template: the verification report needs to be in a particular template to maintain consistency and compatibility with the verification process of the project and consistency of the overall system. Verification report will be prepared by the verification body.
- 9.2.9 Account opening and closing form: to open an account with the registry, the user needs to fill out the requisite form. The format of the form will be provided by the NCCF.

### **9.3 Roles and responsibilities of parties involved:**

- 9.3.1 NCCF: It is responsible for developing and amending the rules and requirements, guidelines, modules, templates, etc for project development, reporting, etc of the projects getting registered with the registry. NCCF also develops methodologies for quantification of GHG emissions and removals for all the sectors and scope.
- 9.3.2 Independent Methodology Developer: IMD are responsible for design and development of GHG quantification, as per the rules and requirements of the mechanism. IMDs are responsible for preparation of methodology document, appointment of 'first' VVB for assessment of the methodology, and preparation of other documents required during methodology submission, assessment and approval.
- 9.3.3 Registry provider: An IT service provider who ensures the functionality of the system as required and detailed in the functional and technical specification of the NCCF guidelines. It handles the queries from the project developers, and the Registry Administrator is responsible for operations of accounts, and verification of the issuance, transfer, cancellation and surrender of carbon credits.
- 9.3.4 Stakeholders: Stakeholders provide inputs and suggestion for development of registry structure, function and technical components.
- 9.3.5 Validation and Verification Body: VVBs are responsible for performing the tasks of validation and verification, as well as assessment of new methodologies submitted, in compliance with the rules, requirements and procedures of the mechanism.
- 9.3.6 Independent Project proponent: IPPs are organization which shall be responsible for development and implementation of projects, and ensuring their conformance to the rules, requirements and procedures of the mechanism. They are also responsible for preparing and furnishing relevant documents, appointing accredited VVBs, monitoring of project activities and performing other activities related to registration of projects, verification/certification of emission reductions or removals, and issuance of MCUs.

## **10. About the organization/NCCF:**

The Network for Certification and Conservation of Forests (NCCF) is a non-profit organisation registered as a Society under the Societies Registration Act 1860 with the broad objective of promoting sustainable management of natural resources through multi-stakeholder engagement, developing and establishing certification schemes for different commodities and management systems, conservation activities and policy advocacy.

NCCF has developed a country-specific, globally aligned and internationally benchmarked certification programme for sustainable management of forests, which was launched in presence of the Secretary, MoEFCC and DGF&SS in January 2018. It is also developing certification standards for the Trees Outside Forests, Non-Wood Forest Products and Protected Areas and Wetlands. The NCCF has got support from the key forest-based stakeholders from government and private sector, such as the Ministry of Environment, Forest and Climate Change (MoEFCC) through its premier institutes like Indian Institute of Forest Management (IIFM), Indian Council of Forestry, Research and Education (ICFRE) and Indian Plywood Industries Research and Training Institutes (IPIRTI), Ministry of Agriculture and Farmers Welfare, Ministry of Commerce, Export Promotions Council for Handicrafts (EPCH), ITC Ltd., Green Initiatives Certification & Inspection Agency (GICIA), Indian Paper Manufacturers Association (IPMA), and industries, like Greenply, Dabur, Paper and Plywood Industries, and many more in furtherance of its objectives.