After studying this chapter, you would be able to:

- Understand Greenhouse Gases (GHGs), Kyoto Protocol and its various market-based mechanisms.
- Examine the mechanism relevant in Indian context under which CERs are granted.
- Recognise the registration process and certification of CERs by UNFCCC.
- Apply the accounting principles relating to recognition, measurement and disclosures of Certified Emission Reductions (CERs) generated by the entity, accounting for carbon credits on its sale or carbon trade.
Kyoto Protocol

Joint Implementation (JI)

Clean Development Mechanism (CDM)

International Emission Trading (IET)

Carbon Trades

Carbon credits

Certified Emission Reductions (CERs)

Verified Emission Reductions (VERs)

Accounting of CERS

As per Indian GAAP (on the basis of Guidance Note)

CER as an Asset

Recognition

Income on sale of CER

Measurement

Disclosure

As per Ind AS

Accounted for as Ind AS 20

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1. BRIEF HISTORICAL BACKGROUND

At present, rise in global temperatures is a major concern all over the world. The speed of warming has been almost three times the century long average since 1970. The main cause of the rise in global surface temperature is the human-induced emissions of Green House Gases (GHG’s) into the environment.

To address the issue of global warming, the United Nations Framework Convention on Climate Change (UNFCCC) was adopted in 1992, with the objective of limiting the concentration of Green House Gases (GHGs) in the atmosphere. GHGs refer to polluting gases including carbon dioxide which cause global warming.

Subsequently, to supplement the Convention, the Kyoto Protocol came into force in February 2005, which sets limits to the maximum amount of emission of GHGs by countries. The Kyoto Protocol at present commits 41 developed countries (known as Annex I countries) to reduce their GHG emissions by at least 5% below their 1990 baseline emission by the commitment period of 2008-2012.

2. KYOTO PROTOCOL

As per the Kyoto Protocol, at present, developing (known as non-Annex I or Annex II countries) and least-developed countries are not bound by the amount of GHG emissions that they can release in the atmosphere, though they too generate GHG emissions.

Under the Kyoto Protocol, countries with binding emission reduction targets (which at present are applicable to developed countries) in order to meet the assigned reduction targets are issued allowances (carbon credits) equal to the amount of emissions allowed.

An allowance (carbon credit) represents an allowance to emit one metric tonne of carbon dioxide equivalent. To meet the emission reduction targets, binding countries in turn set limits on the GHG emissions by their local businesses and entities.

Further, in order to enable the developed countries to meet their emission reduction targets, Kyoto Protocol provides three market-based mechanisms – Joint Implementation (JI), Clean Development Mechanism (CDM), and International Emission Trading (IET).

3. MARKET BASED MECHANISM

Kyoto Protocol provides following three market-based mechanisms:

(a) Joint Implementation (JI)
(b) Clean Development Mechanism (CDM), and
(c) International Emission Trading (IET)

### 3.1 Joint Implementation (JI)

Under Joint Implementation (JI), a developed country with a relatively high cost of domestic GHGs reduction can set up a project in another developed country that has a relatively low cost and earn carbon credits that may be applied to their emission targets.

This is a project based mechanism by which a developed country, with a higher GHG reduction cost, enhances the removal of carbon footprint in another developed country which has lower costs and receives credits. No new credits get created in JI. It only gets redistributed from one developed country member party to the next.

A company in a developed country has two ways to reduce emissions:

(i) It can reduce the GHG (greenhouse gases) by adopting new technology or improving upon the existing technology to attain the new norms for emission of gases, or

(ii) It can tie up with developing nations and help them set up new technology that is eco-friendly, thereby helping developing country and its companies in earning credits.

#### Example

A company in a developed country which emits 1,00,000 tonnes of carbon dioxide has to, being an Annex I country follow the emission norms which sets a target of 80,000 tonnes.

The two things that the company can do are:

- To either invest in cleaner machinery and technology or
- It can buy Carbon Credits to meet its target to become carbon neutral.

A company in developed country may prefer option ‘b’ to option ‘a’.

### 3.2 Clean Development Mechanism (CDM)

Under CDM, a developed country can take up a GHG reduction project activity in a developing country where the cost of GHG reduction is usually much lower and the developed country would be given carbon credits for meeting its emission reduction targets.

In case of CDM, also entities in developing/least developed countries can set up a GHG reduction project, get it approved by UNFCCC and earn carbon credits in the form of Certified Emission Reduction units (CERs). Hence, this mechanism creates new CERs which is not the case in the other two mechanisms. Such carbon credits generated can be bought by entities of developed
countries with emission reduction targets.

Developed countries or entities of developed countries, after evaluating the costs of the alternatives, may decide to invest in Clean Development Mechanism projects in developing countries rather than setting up new machinery and technology because setting up new machinery may be costlier in developed country than buying Carbon Credits or investing in Clean Development Projects.

This, when acquired, increases the amount of eligible emissions for the Annexure 1 nations (developed nations).

CDM is a project based mechanism. The credits are generated by developing emission reduction projects, or from afforestation projects in non-Annex 1 nations (developing nations).

Examples of projects include reforestation schemes and investment in clean technologies.

Note: CDM projects must meet detailed requirements and follow the exact steps for validation, registration and verification for emission reductions.

3.3 International Emission Trading (IET)

Under this mechanism, Entities of Annex 1 countries may acquire or transfer Emission Reduction Units (ERU) or CERs from another party.

Under IET, developed countries with emission reduction targets can simply trade in the international carbon credit market. This implies that entities of developed countries exceeding their emission limits can buy carbon credits from those whose actual emissions are below their set limits. Carbon credits can be exchanged between businesses/entities or bought and sold in international market at the prevailing market price to cover their shortfall in allowances.

Illustration 1

A company in India (developing country) switches from coal power to wind energy, an activity which definitely reduces carbon emission. The CDM board then certifies. Carbon Credits stating that the company has reduced Carbon dioxide emissions by 1,00,000 tonnes per year. It issued 1,00,000 CERs as Carbon Credits.

These CERs can be sold to the companies unable to meet their targets in developed countries. Calculate the amount which can be earned by the Indian company on sale of such CERS assuming that the price of 1 CER is around 5 Euros. 1 Euro is equal to INR 78
Solution
Total CERS earned = 1,00,000
Value per CER = Euro 5
Amount which can be earned by an Indian Company if sold at this rate
= 1,00,000 CERs x 5 Euro x INR 78 = INR 3,90,00,000.

4. CARBON CREDITS AND CERTIFIED EMISSION REDUCTIONS

Carbon credits are a key component of national and international emission trading schemes that have been implemented to mitigate global warming. Credits can be exchanged between businesses or bought and sold in international markets at the prevailing market price. Credits can be used to finance carbon reduction schemes between trading partners and around the world.

- The “unit” or “currency” for this trade is called Certified Emission Reduction (CER) commonly called as Carbon Credits.
- One unit of CER is equivalent to the reduction of one metric ton of CO2 or its equivalent.

Symbolically: 1 CER= 1 tonne of CO₂ (or equivalent gases) or 1 metric ton of CO₂

Carbon Credits have been given the recognition of an intangible commodity and can be traded on the commodities market. Trading of carbon credits happens in the form of CERs. CERs are in the form of certificates, just like a stock. A CER is given by the CDM Executive Board to projects in developing countries to certify that they have reduced greenhouse gas emissions by one tonne of carbon dioxide per year.

Example
A project generates energy using wind power instead of burning coal. In the process, the entity saves 25 tonnes of carbon dioxide per year. Since, one CER is equivalent to one tonne of carbon dioxide reduced it will be said that the entity earned 25 CERs or Carbon Credits

4.1 Benefits of Carbon Credits
4.1.1 Benefits to buyers
a. Cost effective way to meet emission targets.
b. To spend less on buying new equipment and installing the projects

c. Helps to accomplish Corporate Social Responsibility

4.1.2 Benefits to sellers

a. Can gain from better machinery and technology

b. Helps to make profits from Carbon Trade.

c. Helps to accomplish their Corporate Social Responsibility and act as responsible organizations.

d. New projects being set up to reduce GHG emissions also add to total output of the firm, contributing to its turnover.

e. New equipment installed to reduce GHG emission, leads to increased amount of depreciation in the books that act as tax-shield for the company.

f. Use of energy-efficient equipment reduces the total energy bill of the companies, contributing directly to its bottom-line.

g. Availability of Government incentives on import or use of energy-efficient equipment help to reduce cost of production and makes their products globally competitive.

h. Sale of CERs through the Climate Exchanges help companies to earn extra profits over and above they earn from their regular operations.

i. Improve living standards of their people.

5. CARBON TRADE

The mechanism of buying and selling carbon credits is known as carbon trading. The above three mechanisms prescribed in the Kyoto protocol serve the objective of both the developed countries with emission reduction targets, who are the buyers of carbon credits as well as of the developing and least developed countries with no emission targets (at present), who are the sellers/suppliers of carbon credits. The non-polluting companies from less developed countries can sell the quantity of carbon dioxide emissions they have reduced (carbon credits) and earn extra money in the process.

The carbon credits can be traded at designated markets called Climate Exchanges. Exchanges like the Chicago Climate Exchange, EU Climate Exchange (EUCX), and Multi Commodity Exchange of India (MCX) have developed to trading platforms for carbon credits.

The markets for carbon credits are basically ‘Compliance based’. Compliance markets have set
a “cap and trade” system whereby the total annual emissions for an industry or country are capped by law, and carbon credits can be traded between businesses or sold in trading markets.

Kyoto framework envisages a cap and trade system in which, each country is allowed a certain level of emissions during the commitment period. Under this system, regulatory authorities decide on the aggregate levels of allowable emissions for all parties participating in the programme (the ‘cap’) and allocate this aggregate to the parties in the form of ‘allowances’ and such ‘allowances’ represent tradable rights to pollute. In other words, those producers who exceed their emission reductions can trade their credits to others in the market place who have not reached their emission goals.

Note: We need to consider only CDM as we are not in Annexure-1 for considering JI or a buyer of CERs under IET.

6. PRICING OF CERS

Prices of CERs generated by CDM projects are influenced by several factors. The main factors are:

- Price of European allowances traded under the European Emissions Trading Scheme
- Demand from other Annex I countries (e.g. Japan)
- Delivery stage of the CER credits (e.g. registered project with delivery guarantee/without guarantee, CER futures from project not yet registered).

The price of Carbon Credits is a function of demand and supply situation as is the case with any other asset. As the developed countries who have signed the protocol have norms fixed, the demand for carbon credits depends to what extent they meet these targets.

The demand for carbon credits depends on the actual levels of GHG emissions of various countries in relation to their targeted emission reductions. If the countries achieve higher level of emission reductions than their targets, then the companies in those countries need not buy additional carbon credits.

But, if they are unable to meet their demand internally, the demand for carbon credits is likely to be higher. Thus, the price of Carbon Credits is subject to fluctuations based on the demand for it. The demand for carbon credits depends on the actual levels of GHG emissions of various countries in comparison with their targeted emission reductions.
7. VERIFIED EMISSION REDUCTION (VER)

VER is just like CERs, only that they are generated by small scale projects, which are assessed and verified by third party organizations rather than through the UNFCCC. Verified Emission Reductions (VERs) are units of greenhouse gas reductions generated from Clean Development Mechanism (CDM) projects under the Kyoto Protocol, in developing countries and verified by external, UN-accredited third party verifiers.

The VERs do not have to undergo the various steps for setting up a Clean Development Mechanism projects, like registration, verification, certification, issuance of CERs as in case of CDM or Emission Reduction Units (ERUs). Buyers therefore tend to pay a discounted price for VERs, which takes the inherent regulatory risks into account.

A VER is a reduction of one metric tonne of greenhouse gas emissions (expressed as a CO2 equivalent) below a baseline or business-as-usual level. 1 VER corresponds to one metric tonne of CO2 equivalent.

Voluntary markets for emissions reductions cover those buyers and sellers of Verified Emission Reductions (VERs), which seek to manage their emission exposure for non-regulatory purposes.

Example

A steel project undergoes CDM process but it skips verification and certification. It has reduced 60,000 metric tonne of CO2. Since the complete process of CDM is not met, here verified emission reduction (VER) will be generated and not CER. 60,000 VER will be generated.

8. CALCULATION OF CERS

CERs are awarded based on the global warming potential of the gas. Greenhouse gases affect global warming with varying intensities. This intensity is measured by the "global warming potential" of the gas.

Example

The global warming potential of Methane is 13 and the Global Warming Potential of Carbon Dioxide is one. It implies that one tonne of Methane has 13 times more the greenhouse affect than Carbon Dioxide.
9. CLEAN DEVELOPMENT MECHANISM PROJECT REGISTRATION PROCESS/CYCLE

9.1 Stage I: Project Design Document (PDD) and Monitoring Plan Preparation

The first step in CDM projects starts with identification of an idea in order to develop a project. The initial step requires the project proponent to examine the emission reduction resulting from the project and to ascertain if it contributes to the development priorities of the nation.

The Project Sponsor has to develop a CDM Project Design Document (PDD) for the identified opportunity in the PDD format approved by CDM Executive Board.

9.2 Stage II: Host Country Approval

Once the project promoter is convinced that the project is relevant under CDM, a project idea note is prepared and submitted for endorsement to the Designated National Authority (DNA) of the host country. For India, the Designated National Authority (DNA) is the Ministry of Environment and Forests (MoEF), Government of India.

9.3 Stage III: Validation

To establish the 'additionality' of a project, it is necessary to first define a Baseline against which project emissions can be measured. This baseline study is carried out in accordance with provisions in the Kyoto Protocol and Marrakesh Accord, and estimates the quantum of GHG reductions in terms of tonnes of carbon dioxide equivalents. The project idea note, the baseline study, and other relevant details are submitted for validation to an independent agency identified.
by the CDM Executive Board as a DOE (Designated Operational Entity). The Project sponsor is required to appoint an independent third party for validation of the project.

9.4 Stage IV: Approval of Baseline Methodology by CDM–EB / Methodology Panel

Project participants willing to register a CDM project activity shall:

- Use a methodology previously approved by the Executive Board or
- Propose a new methodology to the Executive Board for consideration and approval.

If the project is a first of its kind, then it will probably have to propose a new methodology. In case a new baseline methodology is developed, it is reviewed by a panel of experts constituted by the Executive board called the "Methodologies Panel" before final board approval, and on its recommendation, it is approved by CDM -EB.

9.5 Stage V: Project Registration

A validated project is required to be registered with CDM-EB of UNFCCC. This is usually the responsibility of the Designated Operating Entity. The Project sponsor is required to pay a registration fee.

Registration is the formal acceptance by the CDM-Executive Board of a validated project as a CDM project activity. Registration is a prerequisite for verification, certification and issuance of CERs related to that project activity.

9.6 Stage VI: Monitoring and Verification

Verification is a periodic independent review and ex post determination by the designated operational entity of the monitored reductions in anthropogenic emissions by sources of greenhouse gases that have occurred as a result of a registered CDM project activity during the verification period. Certification is the written assurance by the designated operational entity that, during a specified time period, a project activity achieved the reductions in anthropogenic emissions by sources of greenhouse gases as verified.

9.7 Stage VII: Certification

Certification is written assurance by the designated operational entity that, during a specified time period, a project activity achieved the GHG emissions reductions as verified.
9.8 Stage VIII: Issuance of CERs

(i) The certification report, submitted by the DOE to CDMEB/Registrar, shall constitute a request for issuance to the Executive Board of CERs equal to the verified amount of reductions of anthropogenic emissions by sources of greenhouse gases.

(ii) The monitoring and verification entity, after completing the process, submits its report to CDM EB, which constitutes a request for issuance of Certified Emission Reduction (CERs).

(iii) A project can continue to earn CERs for a maximum of either 10 years (with no change of the baseline) or 7 years with at most two renewals (i.e. up to 21 years).

(iv) 2% of the share of proceeds from the CERs must be forwarded towards the adaptation fund of the Kyoto Protocol.

From the above, it follows that there are various parties involved in the carbon trading process. These include (i) Generating entity/generator, i.e., the entity which undertakes CDM project activity to generate CERs; (ii) CDM Executive Board of UNFCCC which approves the CDM projects and issues CERs; (iii) Designated National Authority as defined above and in India it refers to National CDM Authority; (iv) Designated Operational Entities as defined above which validate and verify the CDM project and its operations; and (v) the buying entity/buyer which buys the CERs generated by the generator.

10. WHAT IS ADDITIONALITY?

To be eligible for CDM benefits, the proposed project must have the feature of additionality, i.e., the CDM project must provide reductions in emissions that are additional to that would occur in the absence of the project. The CDM Project has to generally state as to what would have happened without the project. The basic idea of additionality is that those project activities that would also occur without the CDM, i.e. that are business as usual, should not be certified under the CDM.

Example

An entity can generate CERs under CDM, if it installs a waste heat boiler that saves energy. This is because reduced fuel use reduces the amount of carbon dioxide emitted. However, if an entity has to undertake the project activity because of law, for example, if the industry is legally mandated to have a waste heat recovery boiler, such a project is generally not eligible for CDM benefits.
Additionality can be:

1) **Environmental additionality**: It looks as to what would happen without the project. This includes a dialogue of impact of the project activity on resource sustainability, reduction of the level of pollution by the project etc.

2) **Technological additionality**: The CDM project activities should lead to transfer of environmentally safe and sound technologies and knowledge.

3) **Financial Additionality**: The project should bring in additional investment consistent with the needs of the people.

4) **Emission Additionality**: The project should lead to real, measurable and long term GHG mitigation. The additional GHG reductions are to be calculated with reference to a baseline.

### 11. WHAT IS A BASELINE?

A baseline for a CDM project gives the greenhouse gases emissions that would have occurred in the absence of the proposed CDM project activity. If a project gets 20,000 CERs it means that its emissions are 20,000 tonnes of carbon dioxide less than a reference point called a baseline.

The amount of emission reduction of the greenhouse gases is the difference between the emissions that would have occurred without the project minus the emissions of the project. The construction of such an imaginary scenario is known as the baseline of the project. The baseline may be estimated through reference to emissions from similar activities and technologies in the same country or other countries, or to actual emissions prior to project implementation.

**Example**

In an industry, six different projects have 20,000 CER, 15,000 CER, 14,000 CER, 19,000 CER, 24,000 CER and 32,000 CER respectively. Since all the projects belongs to the same industry, the baseline will be the least value i.e. 14,000 CER.

### 12. CDM PROJECTS IN INDIA

India, being a non-Annex I country, has emerged to be a beneficiary as Indian entities can set up CDM projects which reduce GHG emissions and thereby generate CERs which can be sold to Annex I countries and used by the latter to meet their binding emission reductions.

- India could emerge as one of the largest beneficiaries accounting for **25 per cent** of the total world carbon trade.
India is considered one of the largest beneficiaries in carbon credit trade accounting for about $5 bn.

The number of approved project from India stands at 892 as on December 2016.

The total number of CDM projects registered with CDM-EB has reached 1056 with Indian CDM Projects leading and 143,760,593 CERs issued.

India being a developing country has no emission targets to be followed. However, she can enter into CDM projects. Industries like cement, steel, power, textile, fertilizer etc. emit greenhouses gases in their use of fossil fuels.

Companies investing in Windmill, Bio-gas, Bio-diesel, and Cogeneration are the ones that will generate Carbon Credits for selling to developed nations. Polluting industries, which are trying to reduce emissions and in turn earn carbon credits and make money include steel, power generation, cement, fertilizers, waste disposal units, plantation companies, sugar companies, chemical plants and municipal corporations.

Example: Delhi Metro Rail Corporation (DMRC)

A must-mention project is the Delhi Metro Rail Corporation (DMRC): It has become the first rail project in the world to earn carbon credits because of its use of ‘regenerative braking system’ in its rolling stock. DMRC has earned the carbon credits by using regenerative braking system in its trains that reduces 30% electricity consumption.

Whenever a train applies regenerative braking system, the released kinetic energy starts a machine known as converter inverter that acts as an electricity generator, which supplies electrical energy back to the Over Head Electricity (OHE) lines.

This regenerated electrical energy that is supplied back to the OHE is used by other accelerating trains in the same service line. DMRC can now claim 400,000 CERs for a 10-year crediting period beginning December 2007 when the project was registered by the UNFCCC. This translates to Rs 1.2 crore per year for 10 years.

India has the highest number of CDM projects registered and supplies the second highest number of Certified Emission Reduction units. Hence, India is already a strong supplier of Carbon Credits and can improve on it.

12.1 Benefits for India

By switching to Clean Development Mechanism Projects, India has a lot to gain from Carbon Credits. All the benefits of Carbon credits for seller will be enjoyed by India as well.

(a) It will gain in terms of **advanced technological improvements** and related foreign investments.
(b) It will contribute to the underlying theme of **greenhouse gas reduction** by adopting alternative sources of energy

(c) Indian companies can make **profits** by selling the CERs to the developed countries to meet their emission targets.

### 13. TRADING PLATFORM FOR CER IN INDIA

As a welcome scenario, India now has two Commodity exchanges trading in Carbon Credits. This means that Indian Companies can now get a better trading platform and price for CERs generated.

- Multi Commodity Exchange (MCX), India’s largest commodity exchange, has launched futures trading in carbon credits. The initiative makes it Asia’s first-ever commodity exchange and among the select few along with the Chicago Climate Exchange (CCE) and the European Climate Exchange to offer trades in carbon credits. The Indian exchange also expects its tie-up with CCX which will enable Indian firms to get better prices for their carbon credits and help integrate the Indian market better with the global markets to foster best practices in emissions trading.


Thus, India has an advantage as it can get better price for the Carbon Credits generated.

MCX is the futures exchange. People here are getting price signals for the carbon for the delivery in next five years. The exchange is only for Indians and Indian companies. Every year, in the month of December, the contract expires and at that time people who have bought or sold carbon will have to give or take delivery. They can fulfill the deal prior to December too, but most people will wait until December because that is the time to meet the norms in Europe.

If the Indian buyer thinks that the current price is low for him he will wait before selling his credits. The Indian government has not fixed any norms nor has it made it compulsory to reduce carbon emissions to a certain level. So, people who are coming to buy from Indians are actually financial investors.

### 14. ACCOUNTING TREATMENT AS PER ACCOUNTING STANDARDS

The Institute of Chartered Accountants of India (ICAI) issued a Guidance Note (GN) entitled ‘Accounting for self-generated Certified Emission Reduction (CER)’ in February, 2012. It aims to provide guidance on matters of applying accounting principles to be adopted for recognition, measurement, and disclosure of CERs. More specifically, the GN addresses following key accounting considerations:
1. Whether CER is an asset?
2. Recognition of CERs
3. What type of asset is a CER?
4. Measurement of CERs
5. Measurement of underlying asset related to CERs

14.1 Whether CER is an Asset?

- The ‘Framework for the Preparation and Presentation of Financial Statements’, issued by the Institute of Chartered Accountants of India, defines an ‘asset’ as follows:

  "An asset is a resource controlled by the enterprise as a result of past events from which future economic benefits are expected to flow to the enterprise."

  Hence, CER is an ‘asset’ as per the definition given in the Framework.

- Some argue that as soon as emission reductions take place these should be considered as assets since certification thereof subsequently in the form of CERs is a procedural aspect. However, it is countered by the ICAI that various stages are involved in a CDM project activity to generate CERs. Issuance of CERs is subject to the verification process and after having satisfied all requirements, UNFCCC credits CERs to the generating entity. It is, possible that emission reductions may not eventually result in to creation of CERs.

  Accordingly, at this stage when emission reductions are taking place, CERs can, at best, be said to be contingent assets as per Accounting Standard (AS) 29, Provisions, Contingent Liabilities and Contingent Assets, which defines a contingent asset as “a possible asset that arises from past events the existence of which will be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the enterprise”.

- CER comes into existence and meets the definition of an asset only when the communication of credit of CERs is received by the generating entity. This is because only at this stage the CER becomes a resource controlled by the generating entity and therefore leads to expected future economic benefits in the form of cash and cash equivalents which would arise on the future sale of CERs.
14.2 Recognition of CERs

- CERs come into existence when these are credited by UNFCCC in a manner to be unconditionally available to the generating entity. Therefore, CERs should not be recognised before that stage.

- Further, from the above it follows that for CERs to be recognised in the financial statements of the generating entity as assets, the two criteria with regard to (1) probable future economic benefits flowing from the CERs and (2) CERs possessing a cost or value that can be measured with reliability should be met as follows:

  (a) The probability criterion is said to be met when there is a reasonable assurance that future economic benefits will flow from the CERs to the entity. As the market for CERs is relatively new, the future economic benefits may not always be assured.

  (b) There are certain costs which are incurred to generate CERs, and therefore the cost of CERs can be measured reliably.

14.3 What type of an asset is a CER?

- Keeping in view the non-physical form of CERs, the definition of ‘intangible asset’, as per Accounting Standard (AS) 26, Intangible Assets, is noted as follows:

  “An intangible asset is an identifiable non-monetary asset, without physical substance, held for use in the production or supply of goods or services, for rental to others, or for administrative purposes.”

- Though CERs are non-monetary assets without a physical form, they do not strictly fall within the meaning of ‘intangible asset’ as per AS 26. The reason is that CERs are not held for use in the production or supply of goods or services, and neither are CERs used for administrative purposes nor are they used for the purpose of renting to others. Instead, CERs generated by the generating entity are held for the purpose of sale as per para 44 of AS 26.

- Further, CERs are inventories of the generating entity as they are generated and held for the purpose of sale in the ordinary course of business.

Therefore, even though CERs are intangible assets these should be accounted for as per the requirements of AS 2.

14.4 Measurement of CERs

- CERs are inventories for an entity which generates the CERs. Therefore, the valuation principles as prescribed in AS 2 should be followed for CERs.
• As per AS 2, inventories should be valued at the lower of cost and net realisable value. Accordingly, CERs should be measured at cost or net realisable value, whichever is lower.

• Various costs are incurred by the generating entity to set up a CDM project activity, operate the CDM project and generate CERs. Cost included in the valuation of CERs are:
  
  (a) research costs arising from exploring alternative ways to reduce emissions;
  
  (b) costs incurred in developing the selected alternative as a process/device to reduce emissions;
  
  (c) costs incurred to prepare the Project Design Documents;
  
  (d) fees paid to DOEs for validation and verification and to the National Authority for approval;
  
  (e) fees of registering with UNFCCC;
  
  (f) costs incurred for monitoring the reductions of emissions;
  
  (g) costs incurred for certification of CERs; and
  
  (h) operating costs incurred to run the CDM project.

• As already mentioned earlier, CERs do not come into existence and, therefore, do not become the assets of the generating entity till the UNFCCC certifies and credits the same to the generating entity. Accordingly, not all costs incurred by the generating entity give rise to CERs and therefore not all costs can be considered as the costs of bringing the CERs to existence (i.e., their present location and condition).

Example

The research and development costs as mentioned above are the pre-implementation costs of the CDM projects which do not result in CERs. Accordingly, these should be treated as per AS 26, Intangible Assets (refer also to paragraph 30 below) when they bring into existence a separate intangible asset such as a patent of a process to reduce carbon emissions.

• Similarly, the other costs such as those incurred for preparation of Project Design Document and registration of the CDM project with UNFCCC, etc., do not result in CERs coming into existence, and therefore these costs cannot be inventorised.

• It is only the costs incurred for the certification of CERs by UNFCCC which bring the CERs into existence by way of credit of the same by UNFCCC to the generating entity. Thus, the costs incurred by the generating entity for certification of CERs, are the costs of inventories of CERs.
UNFCCC imposes two types of levies on the generating entity.

1. The first type of levy is in kind whereby a specified percentage of the CERs earned are deducted at the point of issuance by the UNFCCC. This levy is applied to all projects other than those of the Least Developed Countries.

   **Example**
   
   If this levy is 2% and if 1000 CERs are to be issued, then after deducting 20 CERs, 980 CERs will be credited.

2. The second type of levy imposed is in the form of a cash payment which is charged by the UNFCCC towards meeting administrative costs of UNFCCC. In this levy, a fixed payment per unit of CER is charged for the total CERs credited to the generating entity.

   **Example**
   
   Further, if USD 0.10 per CER is charged towards the second levy, then the generating entity will need to make a payment at this rate for the 980 CERs credited to it, i.e., USD 98.

   - The 'costs incurred for certification of CERs' at which the inventory of CERs should be valued include the consultant’s fee and the cash payment made under the second levy to the UNFCCC for obtaining the credit of CERs.
   - The deduction of CERs by UNFCCC under the first levy is in kind which increases the per unit cost of the CERs credited to the generating entity.

**Net Realisable Value**

- Estimates of net realisable value are based on the most reliable evidence available at the time the estimates are made as to the amount the inventories are expected to realise. These estimates take into consideration fluctuations of price or cost directly relating to events occurring after the balance sheet date to the extent that such events confirm the conditions existing at the balance sheet date.”

**Illustration 2**

A company has incurred USD 100,000 in CERs registration, certification and other related costs during financial year 20X1-20X2. This entitles the company to 90,000 CERs.

**Required:**

Pass necessary Journal entries for recognition of CERs, year-end value to be appeared in the financial statements (assuming that the CERs are being traded at USD 1.2 per CER in MCX at the year-end) and on sale of CERs in the next year @USD 1.2 per CER.
Solution

1) The company shall pass the following entry (in USDs):

<table>
<thead>
<tr>
<th>Account</th>
<th>USD</th>
<th>₹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventory (for CERs)</td>
<td>Dr.</td>
<td>1,00,000</td>
</tr>
<tr>
<td>To Bank / Payable A/c</td>
<td></td>
<td>1,00,000</td>
</tr>
</tbody>
</table>

2) For the year-end financial statements for financial year 20X1-20X2, the Company shall carry out a NRV assessment by comparing the realisable value of CERs with cost of USD 100,000. Since NRV of USD 108,000 (90,000 CERs x USD 1.2) is higher than cost of USD 100,000, the company shall continue to disclose the inventory at cost without any NRV mark-down. Further, it will provide appropriate disclosures per AS 2.

   This inventory shall be carried forward till related CERs are sold in the market.

3) On sale of CERs in the financial year 20X2-20X3:

<table>
<thead>
<tr>
<th>Account</th>
<th>USD</th>
<th>₹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank A/c</td>
<td>Dr.</td>
<td>1,08,000</td>
</tr>
<tr>
<td>To Sale of CERs A/c</td>
<td></td>
<td>1,08,000</td>
</tr>
<tr>
<td>Profit and Loss A/c (Consumption)</td>
<td>Dr.</td>
<td>1,00,000</td>
</tr>
<tr>
<td>To Inventory</td>
<td></td>
<td>1,00,000</td>
</tr>
<tr>
<td>Sale of CERs A/c</td>
<td>Dr.</td>
<td>1,00,000</td>
</tr>
<tr>
<td>To Profit and Loss A/c</td>
<td></td>
<td>1,00,000</td>
</tr>
</tbody>
</table>

14.5 Income Recognition

Since CERs are recognised as inventories, the entity should apply AS 9 to recognise revenue in respect of sales of CERs

14.6 Measurement of Underlying Assets Related to CERs

- For the generation of CERs, the generating entity may create certain intangible and tangible assets. Insofar as expenditure on research and development is concerned, the entity should apply AS 26, Intangible Assets.
For example, for reducing emissions, an entity may carry out some research and development which may result into creation of an intangible asset.

- In some cases, an entity may use a tangible asset to reduce emissions. Any pollution control/emission reduction devices installed by the generating entity for the purpose of generating CERs are fixed assets and therefore they shall be accounted for as per AS 10 (Revised).

For example, an entity may use incinerators for the purpose of reducing carbon emissions.

14.7 Presentation

An entity should present certified emission rights as part of Inventories, in the balance sheet, separately from other categories of Inventories such as Raw Materials, Work-in-process, Finished goods and others.

14.8 Disclosure

An entity should disclose the following information relating to certified emission rights in the financial statements:

a) Number of CERs held as inventory and the basis of valuation.

b) Number of CERs under certification.

c) Depreciation and operating and maintenance costs of Emission Reduction equipment expensed during the year.

Illustration 3

*XYZ Ltd is an energy company working on its annual report. Please advise on the following enquiries by its accounts department:*

(i) Balance sheet disclosure

(ii) Measurement of carbon credit

Solution

(i) It is disclosed as an intangible asset under AS 26.

(ii) Measurement of carbon credit is done as per AS 2. As per AS 2, inventory should be valued at the lower of cost and net realisable value. Hence the treatment should be done accordingly.
Indian Accounting Standard (Ind AS) does not have any specific guidance to cover accounting for Carbon Credits. In the absence of the same, an entity will have to exercise judgement and adopt a consistent method of accounting for Carbon Credits to present a true and fair picture of this area in its financial statements.

Carbon Credits or CERs shall meet the definition of Government Grants under Ind AS 20, ‘Accounting for Government Grants and Disclosure of Government Assistance’. In most cases, the grant will be recognised as an intangible asset in accordance with Ind AS 38. However, it may also be appropriate to recognise CERs as inventory in accordance with Ind AS 2 ‘Inventory’ if they are held for sale in the ordinary course of business.

Example

Renewable Energy certificates (REC) are granted to an electricity generator based on the power output (kWh) derived from renewable energy sources. The generator may then sell these to its customers, either with the electricity sold, or separately. In case these RECs are linked to output of electricity units generated and carry a specific value per unit of REC, it may be appropriate to recognize them when the conditions of revenue recognition are met. Accordingly, these may have to be recognized as Government grant revenue with a corresponding receivable/ bank receipts.
TEST YOUR KNOWLEDGE

A. Write Short Notes on:

(a) Additionality test
(b) Benefits of CDM to India
(c) Project Registration in CDM

B. Practical Questions:

1. PQR Ltd has 2 lakh units of CER under validation stage and 60,000 units have been approved by UNFCCC. What in the treatment required for the above?

2. 1,60,000 units of carbon credit (CER) has been produced by LMN Ltd. Currently the value of CER under different situations are as follows:

   (i) Cost @ ₹ 200 per unit i.e. CER
   (ii) Market Value @ ₹ 160 per unit i.e. CER
   (iii) Net Realisation Value ₹ 150 per unit i.e. CER
   (iv) Disposal Value ₹ 140 per unit i.e. CER

   Explain how income recognition will be done as per relevant and applicable Accounting Standards?

Answer to Practical Questions

1. CER does not comes in to existence unless it is validated by UNFCCC. Therefore, only 60,000 units will be accounted in the books.

2. Since CERs are recognised as inventory, the entity should apply AS 2 to recognise revenue in respect of sale of CERs. Accordingly, CER should be valued at ₹ 150 per CER i.e. at NRV which is less than cost.