Regulatory issues relevant to introduction of weather derivatives in India

8.1 Existing regulations in India

8.1.1 Defining financial instruments

The Committee of European Security Regulators (CESR) had in 2004, issued an advice note on the definition of financial instruments. This advice has been debated and a collated opinion of thirteen associations was brought out in the form of comments on the CESR advice (CESR, 2005). While welcoming the flexible and detailed approach adopted by the CESR, the concerns were centred around the definition of financial instruments and the worry that the advice would lead to a narrow interpretation of when a contract could come under the ambit of a derivative, and so leading to exclusion of some contracts and swaps. The association brought out clearly that there was a need for “definitional flexibility” so as to cover a diversity of products as well as future innovations.

One important point of difference, was that the CESR advice would exclude those contracts where the payment was fixed. While CESR advised that “derivatives” are forwards, options or contracts for differences, it limits the last only to contracts where the payment has a variable value, which is based on the difference between two values, of which at least one is not determined at that time (CESR, 2005).

The organisations argue that taking as granted that the need for derivatives stems from a need to hedge volatility in prices and/or in earnings, regardless of the form of the derivative, the object of the parties is the same i.e. to make a profit or avoid a loss. This is done by reference to fluctuation in the particular index or factor, even if the quantum of the profit made, or loss avoided, is fixed.

8.1.2 The evolution of the regulatory processes

Saxena, 2003, brings out that the major contributing factors for success or failure of a derivatives market include:

(i) the market culture
(ii) the underlying market including its depth and liquidity
(iii) the financial infrastructure, including the regulatory framework
Simultaneously the purpose of regulation is to promote efficiency and transparency and to build up investor confidence and not to impede competition and efficiency.

8.1.3 Regulatory objectives in the derivatives markets

The LC Gupta Committee Report (para 3.1) lays down the goals of regulations as:

(i) **Investor Protection.** This includes fair & transparent trading, safeguards for clients' money, competent and honest service and market integrity.
(ii) **Quality of Markets.** The need to enhance market qualities such as cost efficiency, price-continuity and price-discovery.
(iii) **Innovation.** The regulatory framework should not stifle innovation.

8.1.4 Existing regulators in Indian financial markets

Regulation in the Indian financial markets comes under the purview of the Ministry of Finance and under the Ministry of Consumer Affairs in the Government of India.

A graphical representation of the regulators for various sectors in the Indian financial markets is shown below in figure 8.1:

**Indian Financial Markets and Regulators**

![Diagram of Indian Financial Markets and Regulators](image)

**Figure 8.1** Indian financial markets and regulators
8.1.5 Regulatory conditions specified by SEBI for derivatives trading

In India, a strict vigil is kept on derivatives trading by the Securities and Exchange Board of India (SEBI). Some of the important regulatory conditions specified by SEBI are given below:

(i) Trading to take place through an on-line screen based system with on-line surveillance capability to monitor positions, prices, and volumes on a real-time basis.

(ii) Exchange segment should disseminate information on a real-time basis.

(iii) The exchange segment should have a grievance redressal system operative from all areas of the country.

(iv) The clearing corporation shall perform full novation.

(v) The level of initial margin should be based on Value at Risk (VaR). It should be large enough to cover a one-day loss that could be encountered on the position on 99% of the days.

(vi) There should be swift movement of margin payments through electronic funds transfer.

(vii) Clients' margin money is to be held in trust by the clearing corporations for client purposes only and not be diverted for any other purpose. The money is to be used only against liability of the investor and not for any other purpose whatsoever.

(viii) Risks associated with derivatives trading should be made known to an investor.

(ix) An Investor Protection Fund is to be created – to cover investors from default by a member.

8.1.6 FCRA, 1952

The Forward Contract (Regulation) Act (FCRA) was passed by the Indian parliament and came into being in 1952. Although 56 years old, this act still governs futures trading in commodities in India.

The constitution of India places all stock and commodity exchanges dealing with trading in forwards and futures in the Union List, which implies that they come under the regulatory domain of the central government.

The main features of the FCRA are as follows:-

(i) the Act applies to all goods. And “goods” are defined in the Act as movable property other than security and currency.

(ii) section 19 of the Act prohibited options in goods
(iii) contracts have been classified as essentially of two types: ready delivery and forward delivery. Ready delivery are those contracts where physical delivery is done within a period of 11 days. (This was recently amended to 30 days.) All other contracts are called forward contracts.

(iv) forward contracts themselves are classified into two categories-Specific delivery contracts and Non specific delivery contracts.

(v) in the arena of regulation, the Act envisages it in a three tiered fashion. Firstly the exchange itself formulates its own rules, articles of association and bye-laws. The exchange regulates trading on a day to day basis. Second, the Forward Markets Commission (FMC) approves these rules and bye-laws and provides regulatory oversight. Third, the central government, through the Department of Consumer Affairs, Ministry of Consumer Affairs, Food and Public Distribution, is the ultimate regulatory authority.

(vi) until 2008, whilst the government delegated most of its powers to the FMC, it retained full control over the commission. In fact the FCRA envisaged the FMC as having a recommendatory role.

(vii) the Act lays down that only associations notified commodity wise, by the government, can organize forward trading.

(viii) the Act lays down penalties for illegal trading. However, over the years, it has been noticed that these are too nominal to have any deterrent effect. Also, there is no provision to relate the penalty to the amount involved in the offence.

The FCRA, 1952, has been at the centre of many debates; and many authors have brought out problems in the Act. The major problem is that the FCRA is archaic and that there is a need for a strong regulatory body to guide the markets (Sahadevan, 2006). The existing FMC has not been able too meet the emerging needs of the fast-growing markets (Sahadevan, 2004).

The Forward Markets Commission was set up in 1953 as a body envisaged by the FCRA, 1952. It is a small body consisting of a Chairman and a maximum of 3 members (of the rank of Joint Secretary). Section 4 of the FCRA lays down the functions of the FMC as follows:-

(i) advise the government on recognition of exchanges
(ii) act as an observer in forward markets
(iii) collect and disseminate information on trading conditions
Regulatory issues

(iv) recommend improvements in the organisation and working of forward markets
(v) inspect the accounts of exchanges.

As can be seen, the FMC, therefore, is primarily an advisory body under the Department of Consumer Affairs, which retains most of the regulatory authority. As against this, if we were to compare the regulatory capacity of the FMC with that of the capital markets, we note that SEBI is a statutory body—set up by the SEBI Act, 1992. On the other hand, the FMC is a part of the Ministry of Consumer Affairs, Food and Public Distribution. We could also take a comparison from the Commodity Futures Trading Commission (CFTC), the regulatory authority in the USA. Established in 1974, it has been highly successful because of the wide powers and the authority given to it. In fact, the CFTC was strengthened even more through the Commodity Futures Modernisation Act, 2000.

Another noticeable feature in the US markets is the self-regulation aided by the National Futures Association (NFA), which was registered with the CFTC in 1982. This body, comprising of members from various industries, is a self-regulatory organisation which helps bring about ethics and integrity in the market. In the last 10 years, consumer complaints have decreased by 60%, while volumes of futures trading have doubled (Sahadevan, 2006). With a large amount of responsibility being taken on by the NFA the CFTC has passed on its role of screening and registering people applying to conduct business in the futures industry. The NFA has made rules to help protect the interests of investors, to aid floor-trading practices etc. In fact, the CFTC has even transferred the responsibility of registration of brokers, to the NFA.

A step towards correcting the lack of powers with the Indian Forward Markets Commission was taken in January 2008, when the government put forth an ordinance to make the FMC an autonomous agency, much like the SEBI.

8.1.7 SCRA, 1956

The Securities Contracts (Regulation) Act (SCRA), was passed by the parliament in 1956. It contained a large number of prohibitory features, and under this act, all forward trading in securities was prohibited by the government in 1969. Initially, this act excluded trading in derivatives, since they were not included in the definition of securities.
It was much later, in 1995, that the government realized the benefits of derivatives trading. On 25 January 1995, Section 20 of the SCRA, 1956 and its preamble, were amended so as to allow trading in derivatives. The L. C Gupta Committee was set up in November 1996 and its report, submitted in March 1998 recommended permitting trading in derivatives. To aid this, a task force – the J R Varma group was set up in June 1998 to look into the regulatory aspects of trading in derivatives and to recommend risk containment measures.

The report of the group, submitted in October 1998, suggested a margining system and a methodology for charging initial margins. It also recommended a system of assessing broker network, deposit requirements and real-time monitoring requirements.

The SCRA, 1956 was again amended in December 1999 to include derivatives as “Securities”. However, OTC derivatives were not included in this, possibly to preclude their interpretation as wagers.

8.1.8 Introduction of derivatives trading in India

Finally, in March 2000, the prohibition on forward trading in securities was removed and in June 2000, derivatives trading commenced in India on the National Stock Exchange (NSE) and on the Bombay Stock Exchange (BSE) in approved derivative contacts.

In June 2001, trading commenced in index options. In July 2001, the exchanges commenced trading in options on individual securities, and, a few months later, in November 2001, trading commenced in futures contracts on individual stocks.

There are a lot of lessons to be learnt from the process of introduction of derivatives trading in securities which have been, to quite an extent, extrapolated to trading in commodity derivatives. Lessons from both these experiments need to be kept in mind when the introduction to weather derivative trading takes place in India. As such, a thorough review of the process of introduction of derivatives trading in securities in India would be apt.

There were, expectedly, many hurdles faced prior to the introduction of trading. The first and foremost were the legal and regulatory issues, most of which were addressed by the J R Varma group which went into these aspects. There then
was the resistance to allowing the introduction of derivatives mainly from people who were apprehensive about the processes involved and the issues of safety. There were the major challenges of building awareness and educating the community about derivatives. Finally there was the aspect of the need for active marketing of the products which were designed.

The resistance to the introduction of derivatives and the subsequent protests were more emotional than objective (Narain, 2003). They were mostly aimed at the risks involved in derivatives trading, the issue of a lack of maturity of the Indian investors and the potential of large losses for individual investors who might plunge into the markets without sufficient knowledge and without sufficient research. Both, the L C Gupta committee and the J R Varma group, were of tremendous help since they publicly communicated the need for derivatives and their benefits as also the development of a sound regulatory framework. These, therefore, brought about a sense of confidence in the public when derivatives trading was actually introduced.

The challenge of education and training was very well taken up by the National Stock Exchange. Initially this was at a low key, but the persistence of the team at the Exchange finally paid out. The early training programmes were planned once in a week and the focus was only in Mumbai. But slowly, the frequency was increased and these were then spread across the country. Initially the programmes were only in English, but very rapidly they were also done in Hindi, Gujarati and Tamil.

In fact, once trading started, the awareness campaign by the NSE really took off. Workshops were held, not only for analysts, but also for members of the press. Then, press reporting on prices and volumes and market analysis by experts, which were reported by the media – all helped in increasing awareness amongst potential traders. Institutional participation, however, took much longer to come by. This could be attributed to many reasons including the approval processes required before an institution could get involved in derivative trading, the usual resistance to change and the lack of clear accounting procedures. An absence of clear guidelines on the tax liabilities of institutions involved in derivative trading also delayed the entry of institutions into the arena.

Another factor which helped in the spread of awareness stems from one of the recommendations of the L C Gupta committee, that broker-members and
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dealers in derivatives must pass a certificate programme considered adequate by SEBI.

A web-based on-line objective type test was launched. The training programmes, coupled with the tests were highly successful.

What also helped, were the efforts of NSE to have a close working with colleges and academic institutions. The result was that the student community was involved right from the beginning.

Simultaneously the NSE put its efforts to strengthen the underlying market. In the first stage, from the traditional norm of 2 weeks, the NSE was able to bring the settlement period down to 1 week. This was considered remarkable at that time since the volumes were rising rapidly. A further push to this effort was provided by SEBI which decreed that all securities were to be brought under compulsory rolling format on all exchanges by the end of the year 2001. In the next step, the rolling settlement regime moved to T+3 basis from April 2002.

Contract specifications

The prevailing contract specifications for derivatives trading are now discussed, in order to assess their extrapolation to weather derivative trading.

Index derivatives on the stock exchanges are European style, whereas stock options are American style. There are a minimum of 5 strike prices for which contracts are floated. Of these, 2 should be in-the-money, 1 at-the-money and 2 out-of-the-money. At any point of time, only three contracts are to be specified – 1 month, 2 months and 3 months to expiry. These are called near month contract, next month contract and far month contract respectively. The contracts expire on the last Thursday of the expiry month, and a new contract is introduced on the next trading day following the expiry of the near month contract – so that at any time, there are always 3 contract periods available for trade.

8.1.9 Volumes of trading

The F & O business had a slow start. In the first year of trading, the average monthly traded value was in the region of Rs.240 crores. By June 2001, this figure touched Rs 800 crores. The first surge came in September 2001 when there was a surge in volumes in derivatives trading, the world over. The
monthly traded volume in India touched Rs 5000 crores. The second big surge accompanied the introduction of stock futures for trading in November 2001 when volumes touched Rs 1200 crores per day (Figure 8.2).

An analysis of the trading figures done by *Narain, 2003* indicate that near month contracts are the most popular. Futures contracts have more volumes than options in most cases. In general, contract on securities are more popular than those on indices and call options are more popular than put options.

### 8.1.10 Risk management

The recommendations of the LC Gupta committee and the JR Varma group were of great help for drawing up risk management strategies at the exchanges when derivatives were introduced. Some of the strategies adopted are described below:

1. The concept of clearing members was introduced. These were to be distinctly different from trading members. By segregating trading interests from clearing interests, relatively weak trading members now got a chance to participate in the market by being able to pass on some of the risk of their positions to the stronger clearing members.
2. A lot of thought was given to margins. It was described that in the derivatives trading market, margins would be portfolio-based on a 99% VaR approach. Margins are collected up front.
3. Sudden and unwanted growth of open positions was something which needed to be taken care of, since it could endanger the safety of the market.
As such, it was decided to introduce position limits at various levels. Position limits were specified at client level, member level and market wide.

4. It was decided that all derivative products would be cash-settled.

5. In the interest of small investors and to prevent them from entering the derivatives market without being aware of the issues involved, the minimum contract size for derivatives was fixed at Rs. 2 lakhs.

6. The LC Gupta committee had recommended that cross-margining (allowing a member's margin with an exchange for one market to be used against the margin requirements of another market) should eventually be allowed between even spot and derivative markets. This is permitted, so far, only to a limited extent at exchanges.

A few other issues, which could be relevant, include those of a lack of clarity on taxability of income and institutional participation. In fact both are linked to an extent. In view of a lack of a clarity on tax and accounting treatment, institutional participation in derivatives trading has not been too large.

Especially in the case of weather derivatives, they should not be considered as speculative transactions and should be taxed as normal business income. In fact a thought needs to be given to a way of having a nil/very low tax for small transactions in weather derivatives for farmers.

8.1.11 Success at NSE

The bulk of the derivatives trading is on the NSE. Some of the reasons for this are as follows:

1. The deep involvement of the NSE in creating training programmes and spreading awareness, their association with students and academic institutions and the efforts put in by the team at NSE in the years preceding and just after introduction of derivatives trading, led to a sort of creation of a brand name.

2. The F & O screen of the NSE is more user friendly and is easier to trade on.

3. The NIFTY is a more tradeable index.

8.1.12 Legal frame work

The emergence of a derivatives market will normally require legislation, which addresses issues regarding legality of the derivative instruments, protection of these contracts against anti-gambling laws, regulations, powers to monitor and powers to enforce the regulations (Saxena, 2003). In fact the legal framework
for trading in the derivatives market is a very important part of the regulatory framework required before introduction of derivatives trading.

The introduction of the Securities Laws (Amendment) Ordinance, 1995 was the first step. This lifted the prohibition on options in securities. Subsequently the Securities Contracts (Regulation) Amendment Bill, 1998 allowed the inclusion of derivatives in the definition of securities in the SCRA. Thus, trading in derivatives was then possible under the ambit of the SCRA.

The Securities Laws (Amendment) Act, 1999, formally defines derivatives as:
1. a security derived from a debt instrument or risk instrument, and,
2. a contract which derives its value from the prices or index of prices of underlying securities.

The Act also clarified that contracts in derivatives are legal only when traded and settled on a recognized stock exchange. This then disallowed Over-the-Counter trade in derivatives.

Whilst the 1999 Act paved the way for trading in derivatives, the definition of derivatives precluded weather derivatives from being traded because they do not come under the formal definition of derivatives.

8.1.13 Accounting standards

The parliamentary committee set up to go into the Securities Contracts (Regulation) Amendment Bill 1998, had recommended that the Institute of Charted Accountants of India (ICAI) should go into the issue of accounting standards. This was done in consultation with the stock exchanges.

8.2 International regulation of derivatives

The International Organisation of Securities Commission (IOSCO) is an inter-institutional set-up comprising regulators from various countries and includes SEBI as a member.

IOSCO has identified 14 non-exclusive general principles for the oversight of screen based trading of derivatives. These principles identify areas of common concern in the regulatory aspects of derivatives trading and relate to legal standards, regulatory policies, risk management mechanism and disclosure of attendant risks.
Regulatory issues

To see this in an overall prospective the IOSCO framework brings out 3 objectives of regulation which are discussed below:

a) **Market Efficiency and Integrity.** There must be some economic utility of the derivative products and these must be designed so that they address priorities of risk transfer and of price discovery. Market manipulation is given a lot of attention and is addressed though various methods of prevention including direct surveillance, prudent design, and position limits.

b) **Financial Integrity.** The need to emphasize on provision of good clearing and settlement facilities is stressed. This is brought out as a universal regulatory concern. Margin requirements and levels of margin again need to be determined by the relevant exchange and should be determined with respect to volatility.

c) **Customer Protection/Fairness.** Regulations need to include integrity and skills of the intermediaries, conduct of business including execution of orders, disclosure standards to ensure transparency of a high order and a procedure and forum for customer grievances resolution.

### 8.3 Existing framework for derivatives in India

The framework is essentially based on the report and the recommendations of the LC Gupta Committee and the JR Varma group.

There is a clear emphasis on exchange level regulation with a division of regulatory responsibility between the exchange and SEBI. Some of the suggestions made by the JR Varma group for risk containment measures include:

(i) calculation of margins  
(ii) position limits  
(iii) exposure limits  
(iv) reporting and disclosure

The regulatory framework, in the Indian context, for derivatives trading is mostly consistent with the IOSCO principles. The points emerging from the regulatory framework in India (Saxena, 2003) are given below:

(i) **Market efficiency and Integrity Regulations**  
   a) Statutory recognition for the derivatives markets.
b) Satisfaction of economic utility criteria and recognition of derivative products under law.
c) Standard contracts design.
d) Prevention of market manipulation through direct surveillance, position limits and direct regulatory oversight.
e) Trading rules which are fair, permit an audit trail and are transparent, catering for quick dissemination of price and volume information.

(ii) Financial Integrity Regulations
a) Capital based qualifications for intermediaries
b) Adequate clearing and payment facilities
c) Margin requirements and oversight over levels of margins
d) Clearing guarantee which permits multi lateral netting by novation.
e) Maintenance and relation of financial records
f) Contingency planning

(iii) Customer Protection/ Fairness Regulations
a) Fair order execution requirements
b) Authorisation based on qualification and good standing
c) Sales practice standards including required disclosure, prohibition on misrepresentation and unauthorized trading
d) Creation and maintenance of records of transactions including executive confirmations and information to customers.

8.3.1 Some examples of Derivative Contract Specifications in India

1. S andP CNX Nifty Futures:
   • Contract size- 200 times the index, in Rupees
   • Tick size - Rs 10
   • Expiry date - last Thursday of the month
   • Active contracts - 3 nearest months

2. BSE-30 Sensex Future:
   • Contract size - 50 times the index, in Rupees
   • Tick size - Rs 5
   • Expiry date - Last Thursday of the month
   • Active contracts - 3 nearest months
8.3.2 Membership criteria at the exchanges

Clearing member
- Net worth: Rs 300 lakh
- Interest free security deposit: Rs 25 lakhs
- Collateral security deposit: Rs 25 lakhs
- In addition, for each trading member he wishes to clear, the clearing member has to deposit Rs 10 lakh.

The above conditions are the same, both at NSE and BSE

Trading member
- Net worth: Rs 100 lakh (NSE); Rs 50 lakh (BSE)
- Interest-free security deposit: Rs 8 lakh (NSE)
- Non refundable deposit: Rs 3 lakh (BSE)
- Annual Fees: Rs 1 lakh (NSE); Rs 25000 (BSE)

8.3.3 Trading system

The trading system for derivatives at the NSE is called NEAT. It is based on the NEAT system for the cash segment. At the BSE, the trading system is called DTSS. The platform of DTSS is different from that of NEAT, but most of the features are common.

8.4 Examples of regulatory approaches in India

We look at some aspects of the banking sector to see examples of regulatory approaches in India. One aspect, which is highly regulated, is deposit mobilization. There was a time when in an unregulated regime, deposits were being mobilised by many agencies. This had its pitfalls and investor safety was difficult to come by or to ensure. Today, in India only banks and approved Non-banking Financial Corporations are permitted to collect deposits.

A regulatory approach to universalising financial services access is a priority sector obligation, which requires all commercial banks in India to advance 40% of their Net Bank Credit in a given year to certain defined sectors, including agriculture, small enterprises, micro-credit, rural infrastructure etc. (RBI, 2007).

The “Service Area Approach” is another aspect of banking regulation, which is applicable in rural India. This approach lays down geographical areas to be
served by designated branches only (Ananth and Mor, 2004). However, it is debatable whether this inhibits competition.

8.5 Regulations for weather derivatives
8.5.1 Weather insurance vs Weather derivatives

For a long time now, there has been a debate on whether weather derivatives should be classified as insurance. There are, of course, two facets to the discussions, but there is a growing acceptance that weather derivatives are not insurance and should be construed as an altogether different product (O'Hearne, 2004).

The proponents of the argument that they are essentially the same product, bring out the fact that besides just being a nomenclature issue, classifying weather derivatives as insurance would bring in some advantages. Insurance is, already, a well regulated area and clubbing weather derivatives as insurance would provide consumer protections that are commonly associated with insurance. Rating systems of weather derivatives would automatically become subject to scrutiny (NAIC, 2004).

The opposite view is that weather derivatives are not insurance when analysed under insurance laws (O'Hearne, 2004). Most legislations lay down certain elements which need to be fulfilled in order to call a contract ‘insurance’. The major elements which are common in legislation across countries are:

(i) there must be a contract between two parties.
(ii) there must be a promise to pay if a contingent event occurs.
(iii) there should be a payment of a premium and a transfer of a “risk of loss” from the insured to the insurer.
(iv) there should be an uncertainty associated with the occurrence of the contingent event.
(v) the insured must have an interest in the subject of the insurance.
(vi) the insured must suffer a loss.

The proponents of the opposite view also bring out the argument that in the case of weather derivatives, regulatory restrictions and controls by Futures Trading Commissions are sufficient and that regulatory benefits in Insurance are not required in weather derivatives (O'Hearne, 2004).
Pryke M., et al, 2004, bring out that it is critically important to distinguish between insurance (as state-regulated service contracts) and derivatives (as financial market transactions). By not distinguishing between weather derivatives and insurance, we would be inappropriately subjecting the derivatives to Insurance laws which were formed keeping very different contracts in mind.

The National Association of Insurance Companies (NAIC) in the USA, in the NAIC draft paper 10, issued on 2 September 2003, had indicated that weather derivatives could actually be construed as insurance contracts. But, realising the complications involved, withdrew the draft paper in February 2004.

Most importantly, in a derivatives contract, no party has to prove a financial loss. The New York Insurance Department (NYID) has consistently brought out their view that no derivative contract is an insurance contract unless the payments which become due through the contract are dependant on proving an actual loss.

In the case of weather derivatives in particular, while they are classified as financial derivatives, they do have terms and conditions and a logic very akin to that in insurance contracts. One major factor is that there is very little, if any, speculation on weather markets. As weather derivatives are very illiquid, the standard “risk-neutral” point of view is not applicable to valuate them (Barrieu and Karoui, 2002)

Because of the debates and the various opinions arising, the way the contract is documented becomes very important in the case of weather derivatives, so that possible overlaps are avoided.

8.5.2 Benefits of regulation in the weather derivatives.

An EU directive on financial instruments markets, the ISD-2 (Investment Services Directive -2) brings weather derivatives into the ambit of the regulatory framework which exists for all other derivatives (Ananth and Mor, 2004).

The ISD-2 includes exemptions which apply to firms which trade in weather derivatives only for their own account and do not act as market makers and whose weather derivative business is only ancillary to their main business. Ultimately, the aim of the ISD-2 is to help end-users of weather derivatives.
It has been recognised by most users of weather derivatives (Bates, 2004) that the two obvious benefits of a regulatory framework for them would be:

(i) barriers to cross-border business in weather derivatives can be overcome easily

(ii) it would make sure that these instruments do not get inappropriately treated as insurance contracts and get subjected to insurance regulation.

8.5.3 Regulatory initiatives required for weather derivatives

As for any other derivatives, for the introduction of weather derivatives trading in India, there is a need for a regulatory framework. However, the aim needs to be to form broad, overall regulations. If the regulatory framework is too prescriptive and too narrow, it could curb the development of the weather derivative market, which is already late in India, as compared to the USA or Europe.

Issues which arise with respect to weather derivative are:

(i) An advantage is that the market for other commodities in India has taken off fairly well in the recent past and so lessons learnt from the regulatory framework adopted for commodities trading can be extended, with exceptions and modifications, to weather derivatives trading.

(ii) Developed markets abroad have vibrant exchange traded markets as well as OTC markets in parallel (Gupta, 1997). The former cater for players who prefer standardized products with counterparty risk being taken care of, while the latter cater for those who are content with a higher counter party risk, but who prefer customized hedging solutions. Weather Derivatives regulations must cater for both these markets in parallel.

(iii) FII investments in weather derivatives have both advantages and disadvantages. The major advantage would be an increase in the depth of the markets.

(iv) The necessity of conducting research and disseminating education on and awareness of weather derivatives needs to be built into the regulatory framework of weather derivatives.

(v) Easy and ready availability of economically accessible weather data would play a key role in the growth of the weather derivatives market in general (Stern and Dawkins, 2004).
(vi) Again, the degree of accuracy of weather data will play a key role in farmers and other players identifying and managing weather risks.

(vii) A system of integrating weather forecasts into trading of weather derivatives would have to be developed. This would require an upgradation of the accuracy of weather forecasts in India. If seasonal forecasts display skill, the 'fair value' price of a weather derivative option would vary, depending on the seasonal forecast (Stern and Dawkins, 2004). This is a principle, which would be of importance to hedgers, seeking to hedge weather risk.

(viii) Going along with this, would be the regulatory issue of dissemination on a real-time basis, of weather forecasts on an equal basis to all players in the weather derivative markets, including farmers in rural areas.

(ix) Being a new, and not easily understood product, the introduction of a weather derivatives market will simultaneously see the growth of advisors. These would especially, come up to assist companies in, first of all, identifying a company's weather risk, quantifying it in terms of how much of a change in weather (temperature/rainfall) would affect bottomlines, designing protection in terms of proposing a hedge and finally even assisting in placing the hedging transaction. Of regulatory importance is the issue that such advisors should be barred from taking positions in weather derivatives, so that an objectivity in the advice given, is maintained.

(x) To be able to benefit from the experiences of the commodity derivatives exchanges in the last 3 years, it would be prudent that a new derivative, like weather derivatives, should be introduced in existing exchanges and not in a separate exchange.

(xi) It would be crucial to have an appropriate regulatory and legal environment for weather derivatives so that this aspect of the derivatives exchange can develop in a healthy manner. If not, this could lead to friction between market sectors (banking, derivatives, securities) over the prerogative of regulation. An inappropriate regulatory and legal environment could also lead to scandals, corruption, uncertainty about equality in the application of regulations, and market failure.

(xii) Policies and regulations will need to be in place with respect to trading in weather derivatives in foreign derivative exchanges. By allowing trading in these products between local and foreign
exchanges, it would help in increasing liquidity by providing arbitrage opportunities. More importantly, this would also allow better portfolio management through transfer of risk between countries.

(xiii) A large amount of government subsidies have been and are being channelled into crop insurance schemes. These could be re-channeled into building up infrastructure for a large number of reliable weather stations and a communication system linking these to a central data base, which is then available as a Public Sector Information. Structuring and marketing of weather derivatives could then be left to private players.

A case in point is the Japanese experience. In 2004, CME introduced temperature based contracts in Japan. It was found that most contracts were small end-user deals, unlike in the USA and Europe, where most weather derivatives deals are with big energy companies (Lyon, 2004). Part of the reason of the active embracing of the weather risk market by end-users in Japan, unlike in the USA and Europe, is that Japan has more high quality weather stations and exceptional quality meteorological data, when compared to the rest of the world (Jewson, 2004). This reduces basis risk.

(xiv) Experience in the commodities derivatives market shows that during the pre-take off stage, there is a trade off between regulation and development (Kolamkar, 2002). Taking a cue from this, it would be prudent to have a ‘bare minimum’ approach to regulation in the weather derivative market, until it develops.

8.5.4 Legal issues which arise for weather derivatives

The FCRA, 1952, the SCRA and the Indian Contract Act (ICA) and the various amendments to these Acts, determine the legal environment for weather derivatives. It needs to be borne in mind that these laws were designed and introduced without derivatives regulation in mind (Gupta, 1997). At the same time, these laws have been time tested, and need only amendments and some fine tuning for adoption to the weather derivatives market.

Some legal issues which arise are:

(i) The FCRA 1952 envisages a 3-tier regulatory system for commodities future trading. These are: (a) the association itself (self regulation), (b) the FMC and (c) the central government.
The same procedure could be adopted for weather derivatives trading, with a clause mandating a separation of weather derivatives from other derivatives, for the purposes of rules and regulations, at the first level itself. The third level role, i.e. that of the government, should be limited to firstly, an oversight (or a disciplining) role and secondly, an enabling role (through providing the regulatory frame work).

(ii) Section 20 and Section 16 of the SCRA refer to “options in securities” and “contracts in securities”. A notification would be required to the effect that weather derivatives are securities.

(iii) Weather data collection and the security of the processes of data collection would come under the legal ambit and would call for regulatory directives. Also in the same ambit, would be the quality control of the weather recording equipment and of the data collected.

(iv) Practices in most countries do not permit employees of observing weather stations to trade in weather contracts.

(v) There will have to be an equal access to weather products and services to all players so that there is a level playing field.

(vi) Weather forecasts will play a role in the prices of weather derivatives. As such, weather forecast verification would also come under the legal ambit. Those involved in issuing weather forecasts would also need to be barred from trading in weather contracts.

(vii) Bankruptcy and insolvency laws would need to be prescribed so that the right of weather derivative product holders are protected in the event of insolvency or winding-up of intermediaries.

(viii) Disclosure laws would be needed for firms involved in trading of weather derivatives. The laws would need to bring in mandatory disclosures for business risk, systematic risk, operational risk etc. as also a firm’s performance in being able to manage these risks. This would ensure enhanced transparency.

(ix) Regulatory intervention by the government, at the third level of the 3-tier regulatory system for weather derivatives, should be highly active only at the initial phases of the establishment of the market. Beyond this, it should be persuasive in creating the culture of self-regulation in the exchange and among the participants.
8.5.5 Tax issues which arise for weather derivatives.

(i) In taking decisions about various aspects of weather derivatives taxation, the interests of hedgers will have to be balanced against those of speculators.

(ii) Tax treatment of weather derivatives expenses and income would need to be considered.

(iii) Tax treatment for FIIs investment in weather derivatives would need to be considered and made clear, so as to facilitate it.

(iv) In view of the practical difficulties which would arise in the administration of tax in the case of weather derivative products, especially since the aim is to target small and marginal farmers for hedging their weather risks, a special tax treatment would need to be bestowed on weather derivative trades. This would also help in promoting weather derivatives and in providing a level playing field to hedgers and speculators.

It would be prudent to keep weather derivative contracts out of the purview of speculative transactions and, instead, tax them as normal business gains or capital gains. This could be done along with a specified threshold below which there would be no capital gain tax, so as to benefit small and marginal farmers.

8.5.6 Structuring issues which arise for weather derivatives

The Forward Markets Commission (FMC) is the regulator of the commodities derivatives market. It is only logical that the same body should have regulatory rights over the weather derivatives markets. However, FMC regulation should be at the ‘broad’ issue levels e.g. assessing risk management at the clearing house, acting as an arbitrator, education and awareness generation and marketing to the public. Micro issues should be through the process of self-governance at the exchange level.

Some structuring issues which arise are:

(i) Requirements for contracts documentation.

(ii) Capital adequacy norms for intermediaries

(iii) Standards for brokers, including qualification criterion etc.

(iv) Periodic reporting requirements for players/intermediaries

(v) Accounting and disclosure standards.

(vi) As weather derivatives are introduced into the market, they will necessarily have to be priced on a ‘mark-to-model’ basis. However, as
liquidity increases, a ‘mark-to-market’ system will have to develop, so as to build up investor confidence.

(vii) Contract designs – these would include available maturities for weather derivative contracts. As for other commodities, the exchange should obtain permission from the FMC for every new contract it trades.

(viii) Trading mechanisms – timing of the exchange for trading, price limits (up or down); need for very transparent mechanism to disseminate prices.

(ix) Clearing – similar as for other derivatives; the exchange would have a clearing house which records transactions including the size and the price of the trade.

(x) Settlement – obviously weather derivative contracts would need to be cash settled since there would be no delivery in the contracts – this is a major departure from other commodity contracts.

(xi) Governance at the exchange. Governance of exchanges has been an issue of debate in India and across the world. The issues are essentially the same whether in a developed market or an emerging market. There is strong support, especially in the scenario of self-regulation at the exchange level, for the exchanges to be demutualised and being run by a professional management team. The major advantage is the dissociation from the traditional form of exchange being both managed and operated by the same people who also intermediate between investors and the financial instrument. There have been many cases of abuse of power in the traditional system (Thomas, 2002).

(xii) Information collection & dissemination – on Bid and Ask prices of traded contracts.

(xiii) Transaction costs – the fee for the exchange, the fee for brokerage etc. would need to be decided.

(xiv) We need to keep in mind that financial markets will always be more liquid than agricultural markets (Tsetsekos and Varangis, 2000).

8.5.7 Other issues

(i) As there is a build-up of the availability of high quality meteorological data and weather forecasts, there will have to be directives for the re-use and sale of information generated by the public sector. These would include equitable availability of
information, clarity and transparency in conditions for as well as charges for re-use of information, methods for fixing of charges as well as upper limits for these charges etc.

(ii) In most exchanges, worldwide, the regulatory structures are prescribed and exercised through the authority of the government, usually under parliamentary laws (Tsetsekos and Varangis, 2000). The same could be followed for weather derivatives in the Indian context.

(iii) The Regulatory scope, while being defined, should include a reference to geological variables, which might later come into the ambit of innovative weather derivative products. As an example, volume of river flow might be a derivative product in future.

(iv) Since options contracts offer better flexibility in risk management (Thomas, 2002), it would be prudent to consolidate the market with options on weather parameters, initially, and go in for other structures, eg. futures in weather parameters, at a later date.

(v) A survey would be the best method of determining the kind of weather derivative contracts required. However, a-priori, a large number of contracts with various underlying indices and expiry periods, will be useful.