

Constructivist Ethics in International Relations

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With the end of the Cold War the international scenario changed putting end to the erstwhile Cold War 'brinkmanship'. It ushered in flexibility and openness. It soon became obvious that the neo-realist theory was not at all clear about the future developments of the 'balance of power'. The older debates were replaced with two new debates: one between 'rationalists' and 'constructivists' and the other between 'constructivists' and 'critical theorists'.¹ Although some scholars opine that the historical context (the end of Cold War) and the theoretical discussion among IR scholars set the stage for a constructivist approach², it would be more correct to argue that the catalyst for this shift in the axes of debate was the rise of a new constructivist approach to international relations theory.³ This approach challenged the rationalism and positivism of neorealism and neo-liberalism while simultaneously pushing critical theorists away from meta-theoretical critique to the empirical analysis of world politics.

This paper tries not only to account for the rise of constructivism as a theory of international relations, but also to understand whether or not there is a corpus of ethics forwarded by constructivism. After explaining the origins and principle theoretical premises of constructivism, its different forms would be elucidated, followed by the myriad discontents that characterize constructivism as a theoretical approach. Followed by an elucidation of how responses to its critics have led constructivists centrally to explicit engagement with global ethics. To conclude, the paper would consider how far constructivism could be credited with a distinctive ethic of its own, with which it could address global ethical challenges.

Constructivism and Ethics

Since the end of the Cold War, the study of international relations was increasingly influenced by constructivism. According to this approach, the behaviour of humans is determined by their identity,

which itself is shaped by society's values, history, practices, and institutions. Constructivism is characterized by an emphasis on the importance of normative as well as material structures, on the role of identity in shaping political action, and on the mutually constitutive relationship between agents and structures.⁴ The key idea is that the social world including international relations is a human construction which can be explained by scientific theory; it is an *intersubjective* domain, which is meaningful to the people who made it and live in it, and who understand it. It has been made or constituted by people at a particular time and place.⁵

Throughout the last quarter of the 20th century, the neo-realists and the neo-liberals engaged in an internecine rationalist family feud and seeking advantage of these internal differences, critical theorists challenged the very foundation of the rationalist project. Ontologically, they criticized the image of the social actors as atomistic egoists, whose interests were formed prior to social interaction and who enter social relations for strategic purposes, arguing instead that actors are inherently social, that their identities and interests are solely constructed, and are the products of *intersubjective* social structures. Epistemologically and methodologically, they questioned the neo-positivism of social science (especially of the Lakatosian vintage), calling for interpretive modes of understanding which recognizes the inherent subjectivity of all observation. Normatively, they abhorred the notion of value-neutral theorization, arguing that all knowledge is linked to interests, and theories should be committed to exposing and dismantling structures of domination and oppression.⁶ During the 1980s, the first wave of critical theory had a distinct meta-theoretical or quasi-philosophical character. The general tenor of writings under this genre was more abstractly theoretical with an emphasis on the critique of prevailing assumptions about legitimate knowledge, the nature of the social world and the purpose of theory.⁷



Some scholars have argued that constructivism should be seen as an outgrowth of critical international theory, as its exponents employed the insights of that theory to illuminate diverse aspects of world politics.⁸ However, Constructivism differs from the first wave of critical theory in its emphasis on empirical analysis. Although some work was done at the meta-theoretical level, most have sought conceptual and theoretical illumination through the systematic analysis of empirical puzzles in world politics.⁹ The constructivists employed the alternative image of human beings (as socially embedded, communicatively constituted and culturally empowered) proffered by the critical theorists to explain and interpret aspects of world politics that were anomalous to neo-realism and neo-liberalism; they also employed the interpretive, discursive and historical modes of analysis, to further their empirical exploration. These features of constructivism make it a kind of synthesis of rationalist theories of IR, on the one hand, and of critical international theory, on the other.

For Christian Reus-Smit, in order to reassert their theoretical pre-eminence, the rationalists challenged the critical theorists to move beyond theoretical critique to the substantive analysis of IR. While the critical theorists ignored this challenge, the constructivists took it up to demonstrate the heuristic ability of non-rationalist perspectives. Moreover, the end of the Cold War dealt a severe blow not only to the prognosticative pretensions of rationalist perspectives, but also to critical theory's assumption that theory drove practice in a narrow way. By the early 1990s, the new generation of IR scholars was in favour of conceptual elaborations and empirically-informed theoretical development. The end of the Cold War threw up new and interesting questions about world politics and the rationalist failure to explain recent systemic transformations encouraged these new scholars to revisit old questions and issues (control of WMDs, implications of anarchy etc.) in a novel manner.¹⁰ Thus, the enthusiasm of mainstream scholars, frustrated by the analytical failings of the dominant rationalist theorists, in embracing the new perspective, propelled constructivism to the mainstream of the theoretical debate since the 1990s.

For Richard Price, one of the substantive contributions of constructivism in IR has been to show that moral norms (ethics) matter in world politics. Constructivists have embodied ethical commitments and the plausibility of such an ethic has typically been defended on rigorous empirical grounds (showing that norms concerning warfare or human rights can matter) rather than on rigorous normative grounds – which would mean arguing only along a line that such norms are ethically desirable.¹¹ But, as it would be analyzed here, the development of constructivism and the responses to its critics have led it and its contenders to explicit engagement with ethical questions. The liberal and critical theories of IR (as against realism) have had various ways of championing causes of moral progress, even if there is hardly any consensus regarding what counts as moral progress. Having demonstrated that moral norms can matter in world politics, the second generation constructivists were assailed by a methodological critique that demanded explanations of how and why some norms mattered in some places or sometimes, but not in others.¹² This led to a plethora of work across comparative politics and IR to account for the mechanisms of variation in compliance with systemic norms, citing factors such as cultural match, domestic interests and institutions etc.¹³ Although this led to a more serious discussion regarding the role of moral change in the theory and practice of IR, it could not offer a more explicit normative or prescriptive defence for particular changes as 'good' at particular times. With few exceptions, such positions were left implicit rather than defended with the typical empirical bent of constructivist research. For that matter, one might ask, upon what basis, accounts of moral change are deemed desirable, to be accepted as 'good'?¹⁴ While the challenge of having to offer a convincing defense of the ethical desirability of many international norms is well within the grasp of constructivists, constructivism could still not settle its affiliation either towards cosmopolitan values or communitarian ones. It has simply sought to demonstrate the existence of *intersubjective* and systemic or trans-community norms. Thus, the meaning and extent of an explicit constructivist understanding of ethics is called for.

It is also not the case that all constructivists agree on the normative desirability of various developments in the international arena, such as the



humanitarian intervention in Kosovo and other such controversies. It is also on substantive ethical questions like the justifiability of such 'humanitarian interventions' that the divisions between the liberal/cosmopolitan constructivists and the sceptics among critical theorists, feminists and post-structuralists in IR theory become stark. Therefore, it cannot be claimed that progressive moral change is possible in the international arena solely by demonstrating empirically that normative change occurs, since this would mean unproblematically accepting that such change is indeed morally desirable.¹⁵ The normative appeal of particular changes must be understood as well. Besides disagreements among constructivists, an accounting of its ethics is required, given the status of its challengers. In response to the constructivist literature demonstrating the importance of norms and the role of transnational advocacy networks in global politics for the development of various international conventions and various milestones in international criminal law, a conservative response has emerged to challenge the normative desirability of such erstwhile progressive developments. In order to respond adequately to critics who indict constructivism of hinging upon a normative bias in favour of 'good' norms that worked, scholars have turned towards a type of normative defense. Thus, normative theorizing has become inescapable, putting the moral question at the helm of mainstream IR, especially for the constructivists.¹⁶

The Statements of Theory and Types of Constructivism

The constructivists have sought to articulate and explore some core ontological propositions about social life, which they claim can illuminate more about world politics than rival rationalist assumptions. First, if structures could shape the behaviour of social and political actors, the constructivists hold that normative or ideational structures are just as important as material structures. This is in stark contrast to both neo-realism and Marxist theories of IR. Constructivists argue that systems of shared ideas, beliefs and values also have structural characteristics, and that they exert a powerful influence on social and political action. Constructivists like Alexander Wendt argue that material resources only acquire meaning for human action through the structure of shared knowledge in which they are embedded. Ideas about

identity, the logics of ideology and established structures of friendship and enmity lend the material balance of power amongst nations.¹⁷ Moreover, the normative and ideational structures are also thought to shape the social identities of political actors. The constructivists hold that the norms of the international system condition the social identity of the sovereign state.¹⁸ Second, constructivists argue that understanding how non-material structures condition actors' identities is important because identities inform interests and, in turn, actions. Constructivists argue that understanding how actors develop their interests is crucial to explaining a wide range of international political phenomenon that rationalists ignore or misunderstand.¹⁹ Constructivists focus on social identities of individuals and states, to explain interest formation. Third, constructivists contend that agents and structures are mutually constituted. Normative and ideational structures may well condition the identities and interests of actors, but those structures would not exist if it were not for the knowledgeable practices of those actors. According to Boli, Meyer and Thomas, institutionalized norms and ideas "define the meaning and identity of individual actors and the patterns of appropriate economic, political, and cultural activity engaged in by those individuals."²⁰ For Wendt, it "is through reciprocal interactions that we can create and instantiate the relatively enduring social structures in terms of which we define our identities and interests".²¹

Normative and ideational structures could shape actors identities and interests through the mechanisms of imagination, communication and constraint.²² In the 1990s, three different forms of constructivism have evolved: a) Systemic: The focus here is solely upon the interactions between unitary state actors and domestic politics is ignored. An account of world politics is derived simply by theorizing how states relate to one another in the international domain. This model is indicted to have confined the processes that shape international societies within an unnecessarily and unproductively narrow realm; b) Unit-level: This is the inverse of systemic constructivism. The focus here is on the relationship between domestic social and legal norms and the identities and interests of states. Unit-level constructivism enables the explanation of variations of identity, interest and action across states,



something that systemic constructivism obscures. This means, at the same time, that unit-level constructivism has difficulty accounting for similarities between states, for patterns of convergence in state identity and interest; c) Holistic: This form of constructivism bridges the two contrary models discussed above. To accommodate the entire range of factors conditioning the identities and interests of states, this constructivist model ventures to bring the corporate and the social together into a unified analytical perspective that treats the domestic and the international as two sides of a single social and political order. Concerned with the dynamics of global change, this approach focuses on the mutually constitutive relationship between the state and political order.²³

Discontents within Constructivism

The debate animating constructivist discourses in the present decade revolves around the nature of social agency, the relative importance of normative versus material forces, the balance between continuity and transformation in world politics, and an array of other empirical-theoretical questions. However, constructivism suffers from the same debility as rationalism, with significant differences and discontents existing within this field for long. The discontents within constructivism revolve around four issues, and these discontents strengthen the arguments of the critics of constructivism who opine that constructivism does not constitute a unified, unproblematic and fully coherent theoretical position.

The issues of discontent within constructivism are²⁴: a) Disagreements over the nature of theory: With the emphasis on 'constitutive forces' (ideas, norms, cultures etc.) which are all inherently variable in nature, the constructivists find the realist pursuit of a general theory of IR an absurdity, confining their ambitions instead, to providing compelling interpretations and explanations of discrete aspects of world politics. With the exception of Wendt, constructivists generally insist that constructivism is not a theory, but rather an analytical framework; b) The relationship with rationalism: Some constructivists believe that productive engagement is possible between the two approaches, engagement based on a scholarly division of labour. However, Reus-Smit has argued that such projects would confine constructivism to the realm of interest formation,

conceding rationalists the terrain of strategic interaction, leading to the establishment of 'thin' constructivism²⁵; c) The appropriate methodology: earlier constructivists insisted on an interpretive methodology for the study of ideas and meanings which can grasp the relationship between *intersubjective* meanings and the social practices in which they are embedded and which they constitute.²⁶ However, this insistence cannot be found in the works of recent constructivists, who defend a position of *methodological conventionalism*, claiming that their explanations "do not depend exceptionally upon any specialized separate 'interpretive methodology'"²⁷; d) The relationship with critical theory: Andrew Linklater, Richard Price and Christian Reus-Smit have argued that the dominance of constructivism has great potential for the furtherance of the critical project. This can be done by revisiting the normative task of critically assessing and revising how political organizations have been morally justified, by studying the sociological task of understanding how moral community expands and contracts and by revamping the praxis-oriented task of grasping the constraints and opportunities that bear on emancipatory political action.²⁸ Thus, it becomes all the more necessary to understand the ethics of constructivism.

The Question of Ethics in Constructivism

Constructivism is divided between those who remain cognizant of the 'critical' origins and potentiality of their sociological explorations, and those who have embraced constructivism merely as an interpretive tool. Nevertheless, the trajectory of constructivist research agenda and responses to it has led it inexorably to the question of ethics. But does constructivism give a clear answer to the ethical question of 'what we ought to do'? Or is constructivism an ethically neutral analytical tool through which various substantive ethical positions could be harnessed? Contrary to the aforementioned conservative critique regarding constructivism's bias towards 'good' norms that 'worked', it could be asked whether or not constructivism entails an ethical position at all?²⁹ It has been contended that constructivism is an approach, a method or even an ontology or social theory, but that it is not a substantive political theory or theory of IR *per se*. This means that constructivism is best understood as itself constituting neither a normative position nor an ethical



theory as such. For Richard Price, although constructivism does not entail full-fledged ethical commitments, it does toe a line between scepticism and utopianism in the analysis of international relations.³⁰

Constructivism is also allegedly agnostic and this explains the variety of constructivism and how it has lent itself to being harnessed to myriad other substantive theories. Thus, we have such variations within the broad framework of constructivism like 'thick' and 'thin' constructivism, holistic, feminist constructivisms and so on. Owing to its agnosticism, constructivism is equally compatible with both solidarist and pluralist positions on how effective the rules of international society are and whether they pertain only between states or also among humanity.³¹ However, the historical underpinnings of constructivism would make it difficult for its proponents to maintain a strong view of its alleged neutrality. The analytics of constructivism foreclose key contentions of substantive political theories, which entail normative commitments. Furthermore, constructivism's emphasis on the possibilities of social and political change that are not confined to the realm of the domestic polity does seem to preclude conservative international political theories, which discount the possibility of moral change across borders as an anomaly.³² By bringing in the centrality of power to the study of moral norms, constructivism implicitly acknowledges that the resolution of any genuine moral dilemma entails the trumping of some morally substantive visions of politics over others. To exemplify, the war over Kosovo involved the NATO's trumping of humanitarian rescue over Serbian claims of self-determination and autonomy. The dilemma between humanitarian intervention and norms of self-determination is illustrative of constructivism's relation to realist ethics. The world constructed the practice of self-determination to solve one set of moral problems, but this has now created a series of consequences.³³ The dilemma we are now left with between these two international norms is neither due to material power, nor due to the anarchic international system. Rather, it is the product of human agency, of systemic moral change. Constructivism's ontological granting of such developments distinguishes it crucially from important versions of realist scepticism. As Price puts it,

"This would differentiate a constructivist ethic of moral possibility from a scepticism that would dismiss efforts toward agreement upon international moral standards as unrealistic, insofar as the analytical and ontological underpinnings of the former allow for more transcommunity shared morality in world polities than sceptical or communitarian realisms would typically be willing to concede."³⁴

Furthermore, besides acknowledging that international social structures may clash, constructivism, as Alexander Wendt has argued, can be agnostic on the content of those *intersubjective* social structures. But where constructivist IR differs from realist scepticism is not assigning the unrealizability of international moral goods. Progress as defined in humanitarian terms can be had, even if in achieving it new problems and conflicts in resolving them are produced by the inherent restructuring of moral standards of possibility and impossibility that moral change itself then makes possible. However, granting this form of moral conflict actually denies the conjecture of scepticism that meaningful moral improvement in world polities can be dismissed on the presumption of ontological implausibility or inherent ethical paucity. In this way, constructivism could be ethically distinct from the sceptical theories of IR.³⁵

On the other hand, the ontology and empirical findings of constructivism lends strength to a normative theoretical position that accords an essential place not only to ethical possibilities, but also for the empirical limits of ethical ideals for assessing their legitimacy and appropriateness. Constructivist research has shown how moral norms arise and have an impact on world politics, how they ought to be well placed to answer the ethical question of 'what to do' insofar as it is accepted that a proper answer to this question entails a response to the question of not just 'what is just' in principle but also 'what might work' in practice.³⁶ For constructivists, how do we know what is possible or impossible morally in world polities in the absence of empirical assessments of the successes and failures of moral practice? Without trying to deny any sort of utopianism, constructivism demonstrates the power of ideals in the real world. It also simultaneously provides concrete grounds for resisting scepticism of the 'critical' vintage, which



hankers only on such notions as 'relations of power and domination are still there in the international arena' and so on, at the expense of practically realizable ethics, even if it does not dictate abandonment of such 'critical' outlooks.³⁷ Thus, to reiterate, constructivism provides a solid ground for an ethic with navigates between scepticism and utopianism. In response, critical theorists might indict constructivism to be too conservative. The reformist element within constructivism is condemned by critical theorists as an impediment to revolutionary change in the international arena. Critical theorists ask, given constructivism's findings on the possibilities of moral action, is it fair to place limits on ethical possibilities? Constructivists retort that their acceptance of such developments as the International Criminal Court does not preclude the championing of more fundamental and progressive changes such as an effort to end war altogether. Moreover, until such cardinal changes are realized, constructivism could provide a way of action that could make a progressive difference, as opposed to sticking to utopian prescriptions or sceptical opinions.³⁸

The debate on ethics between constructivists and critical theorists take another turn when the latter retorts that constructivism's reformist gestures (as elucidated in its acceptance of small, incremental steps in world politics) only facilitate the perpetuation of global injustice, which calls for more revolutionary action. As such, a call for fundamental and revolutionary changes is within the purview of constructivist ethics, it is nonetheless, averse to fomenting 'crisis' as a catalyst for major international changes.³⁹ The idea of some other substantive theories of IR to foment crisis in the international arena entails the ethical prescription that would abet more crisis instead of neutralizing it. This is definitely not a strong moral position, according to constructivists, as it would inevitably lead to great humanitarian losses at the cost of upholding certain ideals, thereby making things worse in the hope of fundamental changes in the international arena.⁴⁰ The agreement of constructivists on this point is explicit since its major contribution has been to demonstrate how initially small, incremental developments lead to wider changes in the international arena. According to constructivists, it is not possible to account for the epochal changes in the international arena, without paying credence to

small developments which have had a bearing on the larger ones. To exemplify, D. Thomas opines how the Helsinki Accord was routinely disparaged by the West as a blatant sell-out to the Soviets in the 1970s, only to realize it later how monumental it has been to bring about peaceful change in the Eastern Bloc in the post-Soviet era.⁴¹

Conclusion

This paper attempted first to elucidate the rise of constructivism as a dominant theory of IR. The rise of constructivism displaced the debate between the rationalists and the critical international theorists and focused the debate on ontological and empirical issues, which relegated the meta-theoretical debate of the 1980s to the back-burner. The debate animating constructivist discourses in the present decade revolves around the nature of social agency, the relative importance of normative versus material forces, the balance between continuity and transformation in world politics, and an array of other empirical-theoretical questions. There are various types of constructivist outlooks and myriad discontents surrounding it. As mentioned before, insofar as its relationship with critical theory is concerned, constructivists have argued that its dominance has great potential for the furtherance of the critical project. This could be done by revisiting the normative task of critically assessing and revising how political organizations have been morally justified, by studying the sociological task of understanding how moral community expands and contracts and by revamping the praxis-oriented task of grasping the constraints and opportunities that bear on emancipatory political action. This leads us inexorably to the question of ethics in constructivism.

The paper also attempted to account for a constructivist ethic in the international arena, by accepting that constructivism engenders an ethical view equidistant to realist scepticism and critical utopianism. It has been explained that constructivist ethics differs from realism as the former is averse to assigning the unrealizability of international moral goods. Moreover, constructivism provides a solid empirical ground for the realization and functioning of ethics in the international arena. Constructivist research has shown how moral norms arise and have an impact on world politics, how they ought to be



well placed not only to answer the ethical question of 'what to do', but also 'what is just' in principle and 'what might work' in practice. In contrast to critical theory, constructivism prefers the idea of small developments leading to massive international changes and is averse to fomenting crisis in the international arena for the sake of revolutionary changes that might lead to humanitarian losses at the cost of upholding certain ideals as sacrosanct.

Unlike the sceptical or critical theories of IR, constructivism is malleable, insofar as its agnosticism is concerned. This makes constructivism well suited to changing times, making it sensitive to recent international developments. To exemplify, if a particular international organization is not working up to standards and is making more chaos than solving international disputes, the constructivists who were one time in support of it, might just veer away from such a dysfunctional international organization and revise their moral support for it. This explanatory agnosticism is translated into a rigorous and self-reflexive methodological tool to weigh alternative accounts against one another. This contingency, along with the ever-changing nature of international politics, according to Price, underscores the humility in a constructivist ethic.⁴² A constructivist ethic is possible as it understands the limits of moral developments in the world. That moral progress, more often than not, might entail moral dilemmas and not necessarily the resolution of outstanding international conflicts. Moreover, the very processes that herald moral progress in one context might lead to deleterious consequences in other contexts. Thus, any generalization regarding the faculty of moral progress in the world is unwarranted for constructivism. Finally, the humility in constructivism is engendered by the historicist understanding inherent to its focus on cultural context. This reminds us that the moral standards we now uphold would have been deemed morally repugnant by ourselves or our communities perhaps a century ago.⁴³ The Western world, as champions of the Third World's peaceful transition to democracy, could not shun violence. Yet they are now pushing norms and expecting others to make a democratic transition without violence, rarely caring about what if such moral standards were applied to their own incessant imperialist ventures.⁴⁴ For all these reasons, constructivism counsels an ethic of humility,

providing additionally for rigorous grounds to act and judge remaining equidistant to self-fulfilling realist scepticism and critical theory's paralytic inability to account for practical ethical progress.

Notes:

- ¹ Christian Reus-Smit, "Constructivism", Scott Burchill, Richard Devetak et al. (eds.), *Theories of International Relations*, New York, Palgrave Macmillan, 2005, p. 188.
- ² Robert Jackson & Georg Sorensen, *Introduction to International Relations: Theories and Approaches*, Oxford, Oxford University Press, 2010.
- ³ S. Burchill & Richard Devetak et al. (eds.), op. cit., p. 188.
- ⁴ ibid.
- ⁵ R. Jackson & G. Sorensen, op. cit., p. 238.
- ⁶ S. Burchill & R. Devetak et al. (eds.), op. cit., p. 193.
- ⁷ Robert Cox, *Production, Power and World Order: Social Forces in the Making of History*, New York, Columbia University Press, 1987.
- ⁸ S. Burchill & R. Devetak et al. (eds.), op. cit., p. 194.
- ⁹ Nicholas Onuf, *World Of Our Making: Rules and Rule in Social Theory and International Relations*, Columbia, University of Columbia Press, 1989; Alexander Wendt, *Social Theory of International Relations*, Cambridge, Cambridge University Press, 1999.
- ¹⁰ Christian Reus-Smit, *The Moral Purpose of the State: Culture, Social Identity and Institutional Rationality in International Relations*, Princeton, Princeton University Press, 1999.
- ¹¹ [Internet Access] Richard Price, "Transnational Civil Society and Advocacy in World Politics", *World Politics*, Vol. 55, No. 4, July 2003, pp. 579-606, <http://www.jstor.org/stable/25054239>; Accessed on 20 May 2016.
- ¹² P. Kowert & J. Legro, "Norms, Identity and their Limits: A Theoretical Reprise", P. Katzenstein, *The Culture of National Security: Norms and Identity in World Politics*, New York, Columbia University press, 1996, pp. 451-97.
- ¹³ Richard Price, "The Ethics of Constructivism", Christian Reus-Smit & Duncan Snidal (eds.), *The Oxford Handbook of International Relations*, New York, Oxford University Press, 2010, p. 318.
- ¹⁴ ibid.
- ¹⁵ ibid. p. 319.
- ¹⁶ ibid.
- ¹⁷ R. Jackson and G. Sorensen, op. cit., p. 212.
- ¹⁸ S. Burchill and R. Devetak et al. (eds.), op. cit., p. 196.
- ¹⁹ ibid. p. 197.
- ²⁰ J. Holt, J. Meyer & G. Thomas, "Ontology and Rationalization in the Western Cultural Account", G. Thomas et al. (eds.), *Institutional Structure: Constituting State, Society and the Individual*, London, Sage Publications, 1989, p. 12.
- ²¹ [Internet Access] Alexander Wendt, "Anarchy is What States Make of It: The Social Construction of Power Politics", op. cit., p. 406.
- ²² S. Burchill & R. Devetak et al. (eds.), op. cit., pp. 198-199.
- ²³ ibid. pp. 199-200.
- ²⁴ ibid. p. 201.
- ²⁵ Christian Reus-Smit, op. cit.
- ²⁶ S. Burchill & R. Devetak et al. (eds.), op. cit., pp. 204-205.
- ²⁷ P. J. Katzenstein (ed.), *The Culture of National Security: Norms and Identity in World Politics*, New York, Columbia University Press, 1996.
- ²⁸ S. Burchill & R. Devetak et al. (eds.), op. cit., pp. 204-205.
- ²⁹ Christian Reus-Smit & Duncan Snidal (eds.), op. cit., p. 320.
- ³⁰ ibid.
- ³¹ ibid. p. 321.
- ³² ibid.
- ³³ M. Finnemore, "Dilemmas of Humanitarian Intervention", Richard Price (ed.), *Moral Limit and Possibility in World Politics*, Cambridge, Cambridge University Press, 2008.
- ³⁴ Christian Reus-Smit & Duncan Snidal (eds.), op. cit., p. 321.
- ³⁵ ibid. p. 322.
- ³⁶ ibid. pp. 322-323.
- ³⁷ ibid. p. 323.
- ³⁸ ibid.
- ³⁹ ibid.
- ⁴⁰ ibid. p. 324.
- ⁴¹ D. Thomas, *The Helsinki Effect: International Norms, Human Rights, and the Demise of Communism*, Princeton, Princeton University Press, 2001.
- ⁴² Christian Reus-Smit & Duncan Snidal (eds.), op. cit., p. 324.
- ⁴³ ibid. p. 325.
- ⁴⁴ Richard Price (ed.), op. cit.



Ethics and Politics in the Contemporary World: A Case of US Intervention in Iraq

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Ethics and Politics

Politics prescribes laws for the citizens in order to regulate their conducts so that public good can be realized. Man is not only a social being but also a political being. The individual and the state are interdependent on each other. Ethics and politics are intimately related. Both are normative sciences. Ethics aims at the supreme good of the individual whereas Politics aims at public good. Public good can be attained through individual good; therefore politics aims at the establishment of an ideal welfare state where more perfection of the citizens can be realized. Similarly, individual good can be achieved through public good. Politics is a practical science but ethics is not. However, the influence of ethics on the practical life cannot be ignored. Again, when we look back to the history of politics and ethics, we find that in Plato's time ethics and politics were intimately related. Aristotle, however, wrote two separate treatises on politics and ethics and thereby differentiated the scope of the subjects.¹ There is of course a difference of opinion among the thinkers regarding the relation between ethics and politics. Mahatma Gandhi, for example, advocates that a happy marriage should be instituted between politics and morality and high politics must have a moral base. On the other hand, Machiavelli holds that politics has no connection with ethics. The power must be exercised on the people at any cost of their own protection. Hence, it need not have any connection with morality. Hobbes claims that good conduct is imposed by the state, and therefore, ethics is only a branch of politics. The laws of the state are externally imposed upon the people but moral laws are self-imposed. Muirhead have correctly pointed out that you cannot make men moral by acts of parliaments.²

Politics is an essential human activity which plays a key role in the building of any society and communities are based on rules, laws and a balance of conflicting interests among the people. Thus, it requires a high level of responsibility and commitment

from citizens, leaders of the political parties, government executives, the judiciary, the media, business community, religious and educational institutions.³ However, the leaders of the states are often seen as selfish and corrupt power-players, defending their national interests for their country instead of the common good for the different parts of the people. On the other, ethics is necessary for the purification of politics because it is based on science of morals and the principles of human values, and it comes from the human duty.⁴ Moreover, ethics is the practice of making moral judgments about political action, and the study of that practice. Ethics requires political leaders to avoid harming the innocent, but it may also obligate them to sacrifice innocent lives for the good cause of the nation. A President of any country may be morally obligated to order military action even while foreseeing that civilians will be killed.⁵ One thing should be remembered that the national politics is the reflection of the international politics; therefore, we can say that ethics has a significant part in the national politics as well as in the international politics. Therefore, the question of ethics has been central to the study of international politics, as it is a field of study concerned with war and peace, trade and production, and laws, rights and duties.⁶ From the realist point of view, throughout the history of international politics, there is no ethics and there is no relevance of moral values in politics as the pages of the history tells us. The problem of ethics arises when states breach ethics to fulfil their national interests and more significantly, there is no sovereign power at the international level to set of moral values legally binding strictly. Therefore, actors in international politics have worked in different ways that can sometimes be considered to go against ethics.⁷ Now, Ethics has become an instrument in the international politics and leaders have used it for their personal gain. However, what is the relationship between ethics and politics in the contemporary world? Ethics and Politics are similar as both are concerned with protecting the society's prosperity:



Ethics choose what is best for us to enjoy a healthy life, while politics organize the best social life possible. This means that these two are interrelated and one cannot create a prosperous society without having both.⁸

Politics of Ethics in the Contemporary World

In the real world, nation-states are solely concerned with narrow national self-interest, forever manoeuvring, jostling and warring with each other in order to gain ascendancy. States are never happy with the power they have and in order to ensure their own security, they seek to dominate other states. The lessons from the pages of history and of the contemporary world are clear: hegemony is the name of the international politics. If foreign policy is all about *realpolitik*, talk of ethics among states can be no more than propaganda.⁹ In the international system, states incur a number of duties by virtue of their membership of the international community. For example, states obligations are not to interfere forcibly in the affairs of another country, to obey international law, to adhere to international agreements, to co-operate where possible with other nations, to intervene on humanitarian grounds. All these obligations require states to take a wider view than the narrow interests of their countries. In such an environment, states will insist that they protect their interests and claim of moral justification for doing so. But as the national interests of all states become ever more entangled and interlinked, a broader ethical vision is perhaps more pressing than ever.¹⁰ As discussed earlier, ethics is usually defined as the set of moral principles that direct state's behaviour and also define what is considered to be right and wrong. Similarly, political ethics refers to making moral judgements to guide action and methods of decision-making for the public good. Scholars have criticized that leaders are not ethical; they are more concerned with gaining and retaining power than ensuring the well-being of the people. Some would argue that leaders should stick to universal principles such as justice or fairness to better rule.¹¹ On the other hand, political realists would argue that there is no room for ethics in politics or the ethical principles that rule citizens' behaviour should not be bound to the leaders. In fact, leaders throughout history very often made unethical decisions to advance the interests of their nation. However, the political battlefield is focused on morality and

ethics, but it has become a powerful tool for the legitimization of political decisions. Therefore, ethics are used as a gigantic stick which people beat those who believe differently from themselves.¹² Scepticism about the relevance of ethics in politics has been widely shared for a long time. Some well-known sayings include: Morality has nothing to do with politics; Ethics and polities are poor bedfellows; there are many men of principle in both parties in America, but there is no party of principle; Good laws have their origins in bad morals.¹³

A Case of US Intervention in Iraq

The United States has intervened in abroad militarily on numerous occasions. There are several arguments which frequently made in support of military intervention. Military intervention in abroad is legally justified in Chapter VII of the United Nations Charter. As stated in Article 39 of the Charter, the UN Security Council has the ultimate authority of determining "the existence of any threat to the peace, breach of the peace, or act of aggression" as well as in deciding "what measures shall be taken to maintain or restore international peace and security". Article 51 of the Charter allows a UN member to engage in military action without authorization in cases of self defence against an armed attack; but the US has used other justifications as well. The Realist theory that "the basis of international politics is the power struggle among nations which try to maximize their interests," is used to support the protection of the United States' hegemonic and military dominance in the world.¹⁴ In realist terms, the US invasion of Iraq in 2003 was a rational means for the US to achieve its primary goal of demonstrating its power to allies and competitors alike. Further, Iraq's oil supply and geo-political location in West Asia could provide strategic benefits to the US following the attacks of September 11, 2001, pre-emptive strikes and preventive war gained legitimacy as justifications for military actions in Afghanistan as well as in Iraq. Pre-emptive strikes include actions taken against terrorist organizations to prevent them from actualizing any threats against the United States. Michael Walzer, a prominent *Just War* theorist, believes that pre-emptive strikes are justified as a response to a "sufficient threat" which he defines as "manifest intent to injure, a degree of active preparation that makes that intent a positive danger, and a general situation in which waiting, or



doing nothing greatly magnifies the risk".¹⁵ President George W. Bush made the case for this shift in foreign policy. He contended that a threat from another country or from a terrorist group was sufficient to justify military intervention: "We must take the battle to the enemy, disrupt his plans and confront the worst threats before they emerge...If we wait for the threats to fully materialize, we will have to wait for too long." Therefore, the ethics of military intervention in abroad continue to be hotly debated in the United States, and the perspectives outline several questions include: If military intervention is permissible, who decides when it is necessary? Which countries are subject to intervention? Which may intervene? If it is not permissible, what alternate approaches are effective and justifiable?¹⁶

The current structure of the international system as uni-polar, multi-polar, or uni-multi-polar, it is undisputable that the United States has the preeminent military, political, economic, and cultural power and influence in the world. But the attacks of September 11, 2001 have given the United States a new sense of vulnerability which has also affirmed US dominance in the West Asian region.¹⁷ Moreover, the US policy towards Iraq was based on three assumptions, each of which could be morally problematic: (1) the United States has a right to use preventive force against Iraq; (2) the objective of US military action should be the overthrow of the Iraqi regime; (3) the United States has a right to act unilaterally if others are not willing to do as it deems necessary. It is significant that the Bush Administration made in the context of war against Iraq a strategic doctrine which placed a priority on maintaining US military dominance in the West Asia region, and insisted that traditional concepts of deterrence and non-proliferation were no longer adequate to address rogue nations which possess Weapons of Mass Destruction (WMD).¹⁸ Underlying this new strategy was an important moral insight that there is a moral imperative to address the Iraqi threat and threats like it. Furthermore, the United States, in collaboration with others, has not only a moral right but an obligation to defend against the Iraqi threat that poses in the region. The difficult moral issue is not mostly about ends but about means—how to defend the common good against such threats.¹⁹ Whether or not the Iraqi threat was imminent, the Bush

administration took the concept of pre-emption as an option and turned it into a new doctrine about the legitimacy of the unilateral use of preventive war to deal not just with threats, but with merely potential dangers. Justifying preventive war in this way would represent a sharp departure from just war norms. Preventive war would set a terrible precedent. Where would this doctrine lead? Would the world be a safer place if all countries embraced this new doctrine of preventive force to deal with the proliferation of Weapons of Mass Destructions?²⁰

Soon, it became apparent that Washington is getting ready to take some kind of military action against Iraq to oust Saddam Hussein of Iraq from power. The Bush administration failed to establish any plausible connection between the attacks on America on September 11, 2001, and Saddam Hussein. Even American allies such as Great Britain are not convinced that attacking Iraq is the best thing to do in order to reduce the threat that Saddam Hussein posed to America and its allies in the region. The only reason, why the US attacked on Iraq was to pre-empt from developing weapons of mass destruction against the US and its allies.²¹ Richard Pearl, a member of the defence planning board and the administration, argued that Saddam Hussein is very close to developing WMD and once he succeeds he will pass them on to terrorists who will then use them against the US or Israel. Therefore rather wait for another 9/11 with potentially far more devastating consequences, America must act now immediately, and remove Saddam Hussein from power even if America has to go to war alone. Ironically, the US already possesses nuclear and other WMD in hundreds and thousands is itself a justification for it can use to deter against Iraq and alike. The US cannot undermine the international order and its ethical norms when it suits its interests and then demand that other nations abide by them.²²

In the contemporary world, manipulation of public opinion with the help of the media has become a common phenomenon and the use of ethical arguments for the defence of national interests is a permanent temptation. An outstanding example of this tendency is the justification of the war against the former President Saddam Hussein of Iraq. Before the invasion on Iraq, just-war arguments



were not only used to justify the 'pre-emptive' actions but some basic assumptions were consciously reinterpreted in a way which was not much in accordance with the theory as such.²³ The September 11, 2001, terrorist attacks that provoked a firm reaction from the United States have been the main reason for the recent popularity of the ethics in the contemporary world politics. The issue of ethics in politics gained momentum from the use of war for political purposes have been much discussed during the last few years. In the wake of war against Iraq in 2003, a revival of discussions can be observed at the various levels such as when it can use of force in international relations; what are the acceptable ways of waging wars, including "the war on terror"; what are the obligations of the victors, especially in the context of building a democratic order²⁴. The wars in Afghanistan and Iraq were fought in response to unprecedented terrorist attacks. They were not defensive wars in the standard sense of the term; neither can they be treated as cases of humanitarian interventions. Rather they seem to be something between revenge and a preventive war against future terrorist attacks or a military intervention against a dictator ruling a country of substantial strategic significance. But preventive wars or forcible regime change are not allowed by international law and the ethics of war. Moreover, the new ways of fighting with terrorism have created that are highly controversial from a moral point of view and very often contradict with international law.²⁵ In addition, constitutionally, the US President is commander-in-chief of armed forces, but Congress has the sole authority to declare war. In the wake of the September 11, 2001 terrorist attacks, Congress granted the President Bush extensive authority to punish their sponsors and prevent further attacks. That's why; the Bush Administration has tried to tie the September 11, 2001 protagonists to Iraqi intelligence agents; if Saddam Hussein supported the September 11, 2001 plot, then Bush might justify invading Iraq under his existing congressional anti-terror mandate. But so far, there was not enough evidence to indicate Iraqi sponsorship of terrorism. The US garnered strong international support and public opinion for its military responses to Iraq and against Al-Qaeda and the Taliban in Afghanistan post September 11, 2001.²⁶ Moreover, the National Security Strategy, known as the Bush Doctrine, which famously blurred the line

between pre-emption and prevention. This strategy declared that "America will act against . . . emerging threats before they are fully formed . . . even if uncertainty remains as to the time and place of the enemy's attack."²⁷

Therefore, the invasion of Iraq was one of the most ill-advised and reckless actions of the US government have ever taken. The Bush administration squandered an historic opportunity to unify most of the world against the international terrorism, and through its relentless pursuit of war against Iraq created an era of unprecedented bad feelings. After the September 11, 2001 attacks on the World Trade Centre and the Pentagon, the Bush Administration moved quickly to justify not a general response against Al-Qaeda, but an all-out invasion of Iraq. Their logic was that an Iraq invasion would make the world a safer place. The justification for a unilateral war against Iraq simply did not exist on the facts.²⁸ The key players lied to achieve their objectives of an invasion and long-term occupation of Iraq? The American public would not support a war against Saddam Hussein without something as grievous as a tie-in with international terrorism and weapons of mass destruction. They knew that Americans would not support a war that was to be followed by an open ended occupation with hundreds of thousands of American troops. And finally, they lied because the stakes to them were worth it, and in their minds were the US actually began the war that they had sought long before. Their goal was to achieve long-term objective of having American boots on the ground in that part of the world for the indefinite future, for a variety of political and strategic reasons, but were never articulated by political leaders who were making the case for the war.²⁹

The Just War Theory

For centuries, the just war theory has been used to assess the morality of war. In Western culture, the theory originated with great thinkers like Cicero, Augustine, and Thomas Aquinas. In essence, the theory provides a coherent set of ethical principles with which to assess war. These principles provide middle and prudent way.³⁰ Just War theory is the theory of permissible war that advocates just criteria for the launching of, conduct in and ending of war. It has a long historical tradition that dates back to



medieval times. The traditional focus of the theory was predominantly on two spheres namely: *Jus ad bellum*— Justice in going to war and *Jus in bello*—Justice in the conduct of war. The seven basic principles of just war doctrine are:

- **Legitimate Authority:** Requiring that only legitimate officials may decide to resort to force is one way to protect against arbitrariness.
- **Just Cause:** The three standard acceptable causes are self-defence, recovery of stolen assets, and punishment for wrongdoing.
- **Peaceful Intention:** The intention is to use force to achieve peace, using force to restrain and minimize force.
- **Last Resort:** Before turning to war, all reasonable approaches to a peaceful resolution need to be employed.
- **Reasonable Hope of Success:** In going to war, there must exist the reasonable expectation of successfully obtaining peace and reconciliation between the warring parties.
- **Proportionality:** The suffering and devastation of war must not outweigh whatever benefits may result from war.
- **Discrimination or Non-combatant Immunity:** The means of warfare must discriminate between combatants and non-combatants.³¹

Moreover, there is a recent development that concentrates on just peace which relates to the ending of war and returning from war to peace. This addition to the just war tradition is known as *Jus post bellum* or justice in the termination of war. The Just War theory is important in analyzing a war situation since it occupies a middle ground between Pacifism and Political Realism, the two most commonly used theories that discuss the morality of war. While Pacifism views resorting to war as an immoral act and does not justify war under any circumstances, Political Realism holds the view that "war lies beyond and is unconstrained by morality".³² The Just War theory, which occupies the middle ground between the two extremes, discusses the idea of an acceptable war in which war is not always viewed as an immoral act and holds that subject to certain moral restraints on the conduct of war, it can be justified. After September 11, 2001, the Just War theory became a central issue of discussion and acquired a multiplicity of dimensions resulting from various interpretations.

Proponents of the Bush administration's decision to wage war against Iraq defended it as ethical decision-making while opponents viewed it as an utter violation of ethically accepted norms of waging war, and held the view that it undermines the just criteria set forth by historical traditions of pertaining to war.³³ At present, the theory is used as a justification to any war under vague interpretations. Morally speaking, pre-emption is neither right nor wrong, but is extremely difficult to justify given the complexity of the nature of the danger present. According to some just war thinkers, if the danger is clear and is actually present, then it qualifies as a just cause for it needs immediate remedial action to reduce the suffering it might inflict. But opponents of this idea argue that perceived dangers do not qualify as just cause since, in retrospect, they might be proven entirely works of active imagination. The Bush administration presented yet another justification for the use of force against Iraq that stated enforcement of international law and punishment for non-compliance with existing agreements and international law as a cause for the Iraq invasion.³⁴

The United States is the remaining superpower on the planet. During the last two and half decades, it has struggled to redefine its role in the post-Cold War global system, while it determines what constitutes its vital interests. Therefore, the events on September 11, 2001 caused the Bush Administration to alter American security posture from one of realist non-intervention to one of utilizing preventative war as an instrument of national policy.³⁵ Prior to the American actions in Iraq, the Bush Administration argues that the United States has to intervene in Iraq to remove weapons of mass destruction because they endanger American security in the region. In addition, the administration asserted that the Ba'athist regime has to be removed because it is an oppressive totalitarian regime. After the intervention, when there was no evidence of weapons of mass destruction, Congressional investigators found that intelligence data has been doctored to exacerbate the Iraqi threat.³⁶ Moreover, the United States just to show the world bear a moral burden to help the Iraqi people, build a just peace, thus a burden made heavier precisely because the war was unjust. As an uninvited occupying power in Iraq, the United States has assumed a whole set of moral



obligations to promote the common good of the Iraqi people.³⁷

Ethical Analysis of War against Iraq

- The United States has not only a moral right but a grave obligation to defend against terrorism and the threat Iraq poses. But the difficult moral issue is not mostly about ends but about how to defend the common good against such threats.
- What is disturbing is that the Bush administration has taken the concept of pre-emption as an option in exceptional cases and turned it into a new doctrine about the legitimacy of the unilateral use of preventive war to deal not just with imminent threats, but with merely potential dangers. Justifying preventive war in this way would represent a sharp departure from just war norms.
- In addition to raising strong concerns about dramatically expanding just cause to justify war against Iraq, the Catholic bishops have questioned the wisdom of acting unilaterally.
- Based on available information, there is no new evidence, no new precipitating event, no new threatening actions by the Iraqi government, no new reason to go to war that did not exist one, two, four, or even six years ago.
- A threat that is not clear, that is not direct, and that is not imminent cannot justify going to war. Measured by just war standards, the war proposed against Iraq fails completely of a sufficient cause. Pre-emptive strikes must meet a high standard of justification. Otherwise, they are acts of aggression that violate international law.
- Just war tradition stipulates a reasonable chance of success, but the most probable outcome of an invasion of Iraq would be a long drawn-out bloody war.
- An invasion would also wreak havoc on a civilian population already tortured by war and sanctions, clearly violating the non-combatant immunity stipulation.³⁸

If the war against Iraq was a preventive initiative and eventually it became a war of Iraqi occupation in the West Asia region. There is no morally clear answer to this occupation, but we must at least try to ask the moral questions right now. Was the US intervention moral? Is the occupation succeeded? These are some of critical questions and

too much of the Iraqi debate focuses around on these questions. Indeed, the US intervention was not a legitimate action. George Lopez might be correct in saying that the United States' goal of establishing democracy in Iraq and spreading it to the rest of the West Asia might represent cultural hubris more than an ethical obligation. The US policy has suffered from a moral failure: it has willed the ends but not the means.³⁹ Further, as violence escalated in the region by the radical Islamic group known as the Islamic State in Iraq and the Levant, or ISIS, many scholars are questioning whether the US should become involved with the Islamic States. There are many political and economic concerns regarding America's involvement; however, the situation should also be considered from an ethical point of view and becoming involved in the region will be a sound ethical decision for the US. Like Iraq, the US has an ethical obligation to those threatened by Islamic States. But in reality, it is not the US's duty to police the rest of the world.⁴⁰ On the other, Islamic States has been able to grow in strength and power over the past couple of years. It is easy to see what is happening in West Asia, but states are sitting around either ignoring the problem or debating whether or not to interfere, and consequently, more and more people are suffering. But there are plenty of political and economic reasons for the US to not getting involved in the region; but to do the ethical thing requires putting these reasons aside to do what is right. After examining the issue and using multiple forms of ethical reasoning, the conclusion is that the US has a political obligation to protect the inherent rights of their own people or when its interests are threatened by its adversary then only US can go against its enemy.⁴¹ Michael La Bossiere argues that from a moral standpoint, if the invasion of Iraq was justified because Iraq was believed to have WMDs, then attacks on the United States would also be justified-after all, everyone knows that US has WMDs. When it turned out that Iraq did not have WMDs, the justification switched to terrorism. That turned out to be mistaken at the time, but it is true now. Thanks to the US intervention, Iraq is now a hot bed of terrorist activities in the region. There is a great deal of irony in creating exactly the situation that was used to justify the war against Iraq.⁴² After the justification of terrorism, the tag line became as the "Saddam was a bad man". It is true that he used brutality and fear to rule the population of Iraq



especially to the Kurdish people. Torture and imprisonment were regularly used by the state. Ironically, after the United States invaded Iraq, the torture and imprisonment continued as well. This time, however, it was Americans who were imprisoning and torturing the Iraqi people. In the United States, Bush Administration continued to use fear and secret police tactics. So, the irony is that if the US were justified in taking Saddam Hussein out for being a bad man, then if someone took out the US government, would they be justified on the same moral grounds.⁴³

Conclusion

Almost thirteen years after the invasion of Iraq, it teaches several ethical lessons about war as an instrument of the US foreign policy. First, and foremost, the Iraq war reminds us of the folly and immorality of pre-emptive war. The Bush administration attempted to exercise its "entitlement to meddle...to demonstrate its capacity to impose its will on its designated adversaries" by invading Iraq. President Bush's efforts to exercise his "entitlement to meddle" backfired when it gave birth to an intractable insurgency against the American occupation forces and an ongoing civil war in Iraq. Second, the Iraq war offers an object lesson on the limits of imperial might. David Rothkopf writes that just because a nation is considered the "the world's most powerful country...[that] does not mean it has the power to achieve whatever it seeks to do." As if, the Iraq war cost the United States \$1.7 trillion "with an additional \$490 billion in benefits owed to war veterans".⁴⁴ Also, Bush's propensity for a unilateral approach to fighting in Iraq eventually squandered the goodwill of its allies. Third, the United States have a clear rationale before waging war against its enemies because the US misread "world public opinion on the US decision to go to war." In retrospect, such misperception provided justification for the Bush administration's unilateral approach to the war. It must be also noted that, once it became obvious that no discernible link between al-Qaeda and Saddam Hussein existed, and that there were no WMDs in Iraq, the public support for the war eventually faded. Fourth, America's prolonged counterinsurgency campaigns only exacerbated the local perception of the American troops as occupiers. Last, the Iraq War serves as an object lesson on

allowing people to decide the fate of their own countries.⁴⁵

End Notes

- ¹ <http://www.publishyourarticles.net/knowledge-hub/philosophy/what-is-the-relationship-between-ethics-and-politics/2833/>
- ² Ibid.
- ³ http://www.globethics.net/documents/4289936/13403252/FocusSeries_05_EthicsinPolitics_Benoit_text.pdf#28841e-216a-41ff-bea6-4cf9d4022d86
- ⁴ Richard Shapcott (2011), "International Ethics", in John Baylis, Steve Smith & Patricia Owens (eds) (2011), *The Globalization of World Politics: An Introduction to International Relations*, New York: Oxford University Press, p.198
- ⁵ http://scholar.harvard.edu/files/dft/files/political_ethics-revised_10-11.pdf?m=1360040711
- ⁶ <http://www.ipss.org/2014/01/28/got-ethics-the-role-of-ethics-in-politics/>
- ⁷ Ibid.,
- ⁸ http://www.businessstimes.co.tz/index.php?option=com_content&id=389:ethics-and-politics-the-line-between-the-good-and-the-had&Itemid=40
- ⁹ www.globetrotter.berkeley.edu
- ¹⁰ <http://www.newnation.com/specialreports/anethicalforeignpolicy.html>
- ¹¹ <https://netivist.org/debate/ethics-in-politics>
- ¹² Ibid.,
- ¹³ <https://www.foreignaffairs.com/articles/united-states/2002-07-01/american-primacy-perspective>
- ¹⁴ <https://www.brandeis.edu/ethics/ethicalinquiry/2014/October.html>
- ¹⁵ Ibid.,
- ¹⁶ Ibid.,
- ¹⁷ <https://www.foreignaffairs.com/articles/united-states/2002-07-01/american-primacy-perspective>
- ¹⁸ National Security Strategy of the United States, 2002, pp. 9-10.
- ¹⁹ http://www.paxjoliet.org/documents/USCCB_Iraq_War_2.PDF
- ²⁰ Ibid.,
- ²¹ www.globaleye.org/Iraqattack.htm
- ²² Ibid.,
- ²³ <http://www.ethical-perspectives.be/viewpic.php?TABLE=EP&ID=510>
- ²⁴ http://www.academia.edu/478422/Ethics_on_War_Terrorism_and_Political_Violence
- ²⁵ Ibid.,
- ²⁶ <http://home.earthlink.net/~davidperry/iraq.htm>
- ²⁷ Dean K. Chatterjee (ed) (2013), *The Ethics of Preventive War*, Cambridge University Press: Cambridge
- ²⁸ <http://www.jameswebb.com/speeches-by-jim/government-ethics-in-the-post-iraq-war-era>
- ²⁹ Ibid.,
- ³⁰ <https://www.scu.edu/ethics/focus-areas/more/resources/totaling-up-it-was-an-unjust-war/>
- ³¹ <http://www.usip.org/publications/would-invasion-of-iraq-be-just-war>
- ³² Jeff Memmolo (2009), "Just War," in Robert E. Goodin et al. (eds), *A Companion to Contemporary Political Philosophy*, John Wiley & Sons, p. 669
- ³³ <http://www.e-ir.info/2013/06/06/iraq-invasion-a-just-war-or-just-a-war/>
- ³⁴ Ibid.,
- ³⁵ <http://scholarworks.gvsu.edu/cgi/viewcontent.cgi?article=1010&context=sphareview>
- ³⁶ Ibid.,
- ³⁷ http://kroc.nd.edu/sites/default/files/powers_moral_duty_iraq.pdf
- ³⁸ <http://www.usip.org/publications/would-invasion-of-iraq-be-just-war>
- ³⁹ <http://americanmagazine.org/issue/563/article/dilemma-iraq>
- ⁴⁰ <http://www.ethicssage.com/2014/10/the-ethics-of-fighting-isis.html>
- ⁴¹ Ibid.,
- ⁴² <https://aphilosopher.wordpress.com/2007/06/26/the-moral-irony-of-the-iraq-war/>
- ⁴³ Ibid.,
- ⁴⁴ <http://journal.georgetown.edu/what-ethical-lessons-can-america-learn-from-the-iraq-war-by-jeong-lee/>
- ⁴⁵ Ibid.,



Ethics and Morality in Contemporary Islam: The Mutilation and Imperatives

Dr. Alok Kumar Gupta & Ms. Salma Zafar

Scientific temperament and technology has made deep inroads into life of human beings in twenty-first century. Human beings are adopting scientific values with the passage of time. Contemporary world is more willing to believe in scientific acts based on logical reasoning. The growth in scientific temperament among individuals has severely undermined the role of religion in life of individual and society. On the one hand religion demands unquestionable obligation of human beings and on the other hand, people still continues to believe in "luck or *Kismat*". Large numbers of people despite of their scientific values continue to believe in the power of unseen forces. So, there still continues to be an overlapping between science and religion and the values attached to it. This is because religion still continues to dominate different aspects of an individual's life particularly their ethical and moral aspects. However, the dichotomy between scientific and religious values has resulted in an "ethical crisis" which the world faces today. Ethical crisis is the biggest crisis in the twenty-first century which has overtaken the entire human civilization. In the lust for power and status it seems that people have forgotten even their basic ethical values such as to refrain from harming their fellow citizens, being kind to their neighbors, respecting the freedom of others, and treating everybody at par.

On the name of religion, which is the bedrock of ethics and morality, one section of the people goes on butchering the other section of people. In this contemporary era, where societies are changing rapidly, it seems that basic civic ethics are lost. Islam as a religion and Muslims as its follower is the victim of this corrosion. Unethical action performed by few individuals or groups on the name of Islam has maligned an erstwhile scientific religion of Islam to such an extent that entire religion has been branded as dangerous for the world. Going a step forward, its followers are being labeled as terrorist. This negative prejudice against an entire community has given way to the terms like Islamic Terrorism, Islamophobia, and events like backlashes and boycott of entire community, biasness

at various socio-political, economic and academic levels has further played a role in disturbing the entropy of the society. Therefore, owing to the corrosion of basic ethical values and boycott of an entire community, there is a need to understand the ethical and moral values and its various distortions in contemporary Islam.

Role of Religion in making man moral and ethical beings:

In all the existing religion one fact stands out prominently and that is there is an ideal or infinite power towards which mankind struggles, which cannot be realized except through self-abnegation or self-renunciation, this forms the background of ethics in all religions. An ethical code cannot be framed on consideration on social utility, for, all the social conventions are derived from society as it exists; and it must not be forgotten that society is in constant evolution and any code of ethics developed from one form of society, is transitory and cannot cover the vast field of human existence but an ethical code which is based on religion has a wider and an unlimited scope, for, it takes up an individual in relation to the infinite. Man acting on the utilitarian concept of ethics can be good, but the man who intent to bring mass magnetism, whose life would emit spiritual sparks and ignite other lives, must have a spiritual or religious background for his ethics.¹

Having ethics and morality in life means doing good deeds and bringing no harm to their fellow citizen. The term "ethics" has originated from the Greek word '*ethikos*' which is derived from Greek word '*ethos*', meaning 'custom or character'², while the term "morality" has originated from the Latin word '*mores*' meaning 'customs of specific social group'.³ However, the two terms are interchangeably used, as philosophically both means good behavior. While discussing about ethics and morality, its relationship with religion cannot be ignored. Religion is the very basic foundation of ethics and morality which an individual follows in his/her life. This is because religion,



ethics and morality are intertwined. All religion of the world spreads the message of love and affection. Ethical and moral considerations are epistemological foundation of all religion. Even in contemporary era, religion continues to remain the driving force of ethics and morality as it was during the days of Greek civilization. The role of religion is to make man moral and ethical beings. No religion of the world teaches immorality and to practice unethical principle in lives. Imperatives of religion have always been to make man moral in real sense of term and trigger an ethical revolution. Morality is simply that individuals are humane to human beings, animals and nature. Therefore, religion aims at engineering human nature to transform them into ethical beings, where the rest will be taken care by itself, which will give way to the better world and better future.

Islam and Jihad: The Distortion

History is witness to the distortion of religion to serve the ambitions and aspirations of few people. The old distortion has been put into a new garb. 11th century Crusade (originating from Christianity) is now today's Jihad (originating from Islam). There are the events where the political use of Islam began as a tool of resistance against the ruling party. However, unfortunately the movement lost its path and the organization associated with it ended up being labeled as terrorist organization. Since then, there has been continuous distortion of Islam and particularly the term "Jihad" by the state as well as non-state actors.

However to begin with Islam, the name given to the religion preached by Mohammed. It means submission to the will of God. It is a religion of self-surrender, acceptance of the revelation and following the commands of God. Islam preaches and establishes a strong brotherhood of man. It is a religion of service—the service and worship of God. In Islam people are taught more of ethics than of deep philosophy. It teaches that its followers should acquire the manifold attributes of God. It preaches that God has sent prophets to mankind to bring them on the path of goodness. When the Prophet reached Medina, Arab, Jews and Christians asked him, what is that you wish to teach us? The Prophet replied, I want to teach you to believe in God, to believe in the divinity and the truth of God of divine revelation that have been handed down to mankind by God. I do not want you to regard me as God. I am a man like anyone of you and fallible. I want you to be

kind to the poor and to the weak. I want you to be pure in your thoughts and conduct.⁴

Several theories have been developed to establish the relationship between religion and morality within Islam. Firstly, Mutazilite School developed by Abdal Jabbar from Basra (d.1025) defines a wrongful act as one that deserves blame and holds that the right and wrong character of acts is known immediately to human reason, independent of revelation.⁵ The second theory is given by Asharite School developed by Al Ashari (d.935). He insists that God is subject to none and to no standard that can fix bounds for Him. Nothing can be wrong for God, who sets the standard of right and wrong.⁶ The advocacy of third theory lies in between the first two theories which has been developed by Al-Mutaridi (d.944). He argues that humans have both the good and bad quality, and that God reveals to us by command what to pursue and what to avoid.⁷ Therefore, according to Asharites School God has given us power to do the act and not to act opposite to it, while Mutaridi argues that God has given two powers—power to do the act as well as power preceding the act (to choose either the act or its opposite).⁸ Though these theories can be contested by different individuals on different ground in the world where subjective interpretation reigns high.

Going through the teachings of Quran and Hadith, which is the sole source of understanding Islam, the notion of ethics and morality are to be found everywhere either explicitly or implicitly. "Akhlaq" is considered as the comparable word for ethics in Islam and is also construed as morality.⁹ Moreover, in Islam ethics and morality unlike the western vocabulary conveys the same meaning that is good behavior and good deed. The 'knowledge of morality' (ilm-ul-Akhlaq) also called as the 'science of ethics' is the predominant feature in Islamic thought.¹⁰ Therefore, in Islam there is hardly any difference between the two terms. According to Hadith, beside the five pillars of Islam, it is the *Akhlaq* which is called as the roof of the Islam. This highlights the great importance which Islam attaches to ethics and morality. In Islam, ethics and morality comes with every command of God just like in Bible.

But what the world fails to understand is that Muslims do not deal with some rigid, frozen entity called 'shari'ah' but with the eternal principles of ethics



anchored in the Quran and Sunnah, developing as the human race progresses.¹¹ This happens, when Quran and Sunnah are interpreted in its literal terms without understanding its context and spirit. Those who believe that the Shari'ah is a fossilized entity, they are not aware of either the spirit of Islam or the needs of Muslim society.¹² Rather they willingly distort the Islamic verses to serve their own selfish goal. Moreover, based on the Quranic interpretation of Ijtihad (which allows any Muslims to interpret the Quran themselves and to carry out the Islamic practices), the terrorist groups have given way to the distorted and extremist and to an extent wrong interpretation of Quran. Therefore, their use of ijtihaad to contextualize geopolitical factors as a cause for violent Jihad is determined by their extreme interpretations of the Quran.¹³ And in this way they make an entire religion (Islam) as a cause of the emergence of violence. Those who distort the teachings of Islam, makes a claim that turning away from Allah's obedience is a sin, which leads to the corruption of the heart. But these so called preachers of Islam themselves fail to understand the obedience and struggle which Allah demands from their followers. Beside this, Islam has also been the victim, where it was used as tool of resistance but the collapse of the movement eventually gave ways to the flourishing of terrorist groups which in contemporary era is known as Islamic Terrorist Movement.

Islamic Terrorist Movement- Based on their definition or interpretation of Jihad, the groups are being labelled as Islamic Terrorist groups and their movement as Islamic Terrorist Movement. It is often defined as the movement which through the use of violence aims at preserving extremist interpretation of Quran. They often argue for going back to the era of Prophet Muhammad (pbuh) and first four rightly guided Caliphates. Participants of this movement call for "unquestioned devotion..... [and] blind obedience"¹⁴ to the word of God in order to ameliorate un-Islamic conditions.¹⁵ Al-Qaeda, ISIS, Lashkar-e-Toiba, Boko Haram, Hezbollah, Al-Shabab and the list goes on. All these organizations uses the same arguments to legitimize their actions in the eyes of Muslims population. They try to justify their acts of violence by selective reading of Quran and Hadith according to their own goals. Jihad is the most common and most used word in their dictionary. WANA region (West Asia and North Africa) and Asian region along with European

world to an extent faces the highest fatalities caused by these terrorist movements.

Jihad- Jihad means exerting oneself for the cause of religion. Islam strictly prohibits application of force for its observance. It says that—"you shall not take up arms except in the cause of self-defense. If you tyrannies over people, if you are cruel to them, you shall be punished".¹⁶ However, the term jihad is highly misunderstood in contemporary era. It is the term which is repetitively used by terrorist organization and at times by the state, to wage a war or incite violence against a group or a nation. By providing religious sanction to their immoral and unethical activities, these organizations try to gain their legitimacy around the world. Owing to the rising use of Jihad to wage a war, Oliver Roy says that Jihadism is a nihilistic generational revolt, not a religiously inspired utopianism.¹⁷ He further adds that Jihad is "the only cause on the global market". This is because 'if you kill in silence, it will be reported by the local newspaper but if you kill yelling "Allah-u-Akbar" you are sure to make the national headlines.' Beside this, he also argue that other extreme causes that is ultra-left or radical ecology are 'too bourgeois and intellectual' for the radicals.¹⁸ Therefore, these so called soldiers of Islam (who are not even religiously pious) are left with the only toy in their hand that is Jihad to attract the attention of world towards them.

Therefore, it is necessary to understand the term Jihad, its meaning and its usage form the Islamic perspective. In an open letter to Al-Baghdadi, the forty religious scholars decipher the meaning, reason, goal, intention and rules of conducting Jihad based on Quran and Hadith. They argued that in Islam it is an established principle that the word Jihad cannot be applied to armed conflict against any other Muslims. Moreover, the Hadith establishes that Jihad is conditional upon the consent of one's parents. Islam talks of two kinds of Jihad- Greater Jihad (which is the struggle against one's ego) and is the most important one and Second is the Lesser Jihad (which is the struggle against the enemy). However, Prophet Muhammad (pbuh) emphasized on the greater Jihad as He said that—"We have to return from the lesser Jihad to the greater Jihad." This shows that Jihad is not the fight against the non-Muslims rather it is the fight against the self-ego through the remembrance of God and purification of the soul. So, Jihad is a "means to peace, safety and security, and not an end itself". Beside this, highlighting the reason



behind lesser Jihad, scholars say that Jihad for Muslims is to fight against those who fight them, not to fight anyone who does not fight them, not to transgress against anyone who has not transgressed against them. On the rule of conducting Jihad, Prophet Muhammad (pbuh) said - "Wage war but do not be severe, do not be treacherous, do not mutilate or kill women, children....." Apart from combatants, their families and non-combatants must not be killed on the name of Jihad. Therefore, it can be summarized that greater or lesser Jihad without legitimate cause, legitimate goals, legitimate purpose, legitimate methodology and legitimate intention is not Jihad at all. So, what these terrorist groups are doing on the name of Jihad is not Jihad at all rather it is warmongering and criminality, because Islamic Jihad aims at making a better individual by inculcating ethics and morality by means of controlling their ego and *nafs* (desire).

Causes that led to the distortion-

1. High Dependency on Ulama's (religious scholar)- Being Arabic in origin, most of its followers are highly dependent on Ulama's (religious scholars) for the Quranic interpretation and their words are taken as infallible. This high dependency on religious scholars in Islam provides them the upper hand, which they very easily use for their profit, without even once thinking of its effect on the entire *Ummah*.

2. Intra-Islamic Conflict- Intra-Islamic conflict has brought more danger to the Islam than inter-Islam conflict. The use of Islam as a tool to maintain the hegemonic position by the Islamic countries has further degraded its position. Simultaneously, the rising up of sectarian conflict within Islam with geo-political factor acting as a catalyst has given way to the conflict within civilization. Proxy war is being fought on the name of Jihad between the rival state like Saudi Arabia and Iran, India and Pakistan.

3. Lust for Power and Wealth- In the era of globalization and consumerism, the concept for materialism is high among the people. Individuals in order to enjoy the fruits of materialistic world can go to any extent. In this materialistic world, it is the power and wealth which attracts the more, as has been the case in history. Economic stagnation in the Arab world despite of rich in resources particularly oil and gas fuels the resentment among the Muslims. It is this resentment, on which the radical groups like ISIS, Al-Qaeda, and Boko Haram and so on capitalize. By offering the economic motivation more than Jihad as a reason to

lure the Muslims. As a result, Islam has been used by the leaders of both the state and non-state actors to consolidate their power and accumulate wealth.

4. Expansion of Un-Islamic Practices within Islam- Several practices which are unethical and immoral in nature are being practiced around the world on the name of religion. Islam is no different from this. Several unethical practices have also crept into Islam, which nowhere finds a mention or it or support from Quran and Hadith, which are the sole source to understand Islam. Unethical practices like FGM (Female Genital Mutilation) prevalent in African region are the local cultural practices. Islam does not mention it anywhere as obligatory practices which a female has to undergo; rather in reality it highly condemns such practices. Similarly, the issue of Triple Talak, which is gaining prominence in India, is also an un-Islamic practice which has crept in Islam to maintain the male dominant society. In reality Quran offers a complete method and process which is to be followed before, during and after taking Talak. But there goes the selective reading of the text by Qazi (who are mainly male) in order to maintain their hegemony. Islam is a religion which preaches equality, but the induction of caste system within Islam is also a modern innovation which has given birth to several un-ethical practices. Beside this, the replacement of Mehar practices (where groom has to give something valuable to the bride) by the dowry system and refusal to pay Zakat have led to an expansion of un-ethical and un-Islamic practices within Islam.

5. The way out-

In order to free a religion and its followers from the pejoratives it is necessary to understand the essence and fundamental principles of Islam rather than believing on popular idea revolving around. Some of the measures which can be taken are-

1. Effacing the misunderstanding- It is the most important step to be taken by the Muslims all around the world to counter attack the distortion of the Quran and Hadith which the extremist or terrorist groups are presenting to the world. Recently, condemning the barbaric acts undertaken by ISIS (Islamic State of Iraq and Syria) on the name of Islam, forty Islamic scholars from all over the world wrote open letter to Dr. Ibrahim Awwad Al-Badri alias Abu Bakr Al-Baghdadi.¹⁹ In the letter, referred above they condemned the acts of ISIS as well as its very establishment. They wrote that Islam has never been spread through severity and coercion. Rather they say that God says that "Call to the way of your Lord with wisdom and fair exhortation and dispute



with them by way of that which is best. Truly your Lord knows best those who stray from His way and He knows best those who are guided."(Al-Nahl 16:125). Supplementing this Prophet Muhammad (pbuh) said- "Be gentle and beware of violence and foul language." Simultaneously, they also condemned the acts of killing of innocence, Yazidi's and emissaries as Quran considers the killing as an abominable sin and are unquestionably haram (i.e. Forbidden). Moreover killing prisoners are also not allowed in Islamic Law, rather it is considered as heinous war crimes. Answering the ISIS arguments that Prophet Muhammad (pbuh) killed some captives in some battles, these scholars says that Prophet (pbuh) only ordered the two captives to be killed at the Battle of Badr; namely-Uqbah ibn Abi Mu'ayt and Nadr ibn Al-Harith. This was because they were leaders of war and war criminals and the execution of war criminals is permissible if the ruler orders it. Emphasizing on the view that in Islam people's deeds are tied to the intention behind those deed, they reject the unethical practices undertaken by these groups on the name of Islam with the sole of intention of acquiring power and wealth. They also reject the notion of coercion and compulsion of converting the people into Islam as Quran very explicitly mentions- "There is no compulsion in religion" (Al-Baqarah 2:256) and "You have your religion and I have my religion" (Al-kafirun 109:6). Lastly, on the Caliphate these scholars accept that though a caliphate is an obligation upon Ummah, but the Caliphate requires the consensus from Muslims all over the world and not just from those residing in small corner of the world. Omar ibn Al-Khattab (r.a.) said- "Whosoever pledges allegiance to a man without due consultation with Muslims has fooled himself; and neither he nor the man to whom he pledged allegiance should be followed for he has risked both their lives". However, what ISIS so called caliphate did was to reverse the saying of Omar (r.a.) and issue a corrupt logic saying that-'Only we are Muslims and we decide who the Caliph is, we have chosen one and so whoever does not accept our Caliph is not a Muslim'. Thus, what they did is to reject the ninety-nine percent of Muslims who does not owe them allegiance as Non-Muslims and thus, were met with the same extremities. So, we need more Muslims and Islamic Scholars to come forward in effacing the misunderstanding and the world needs to listen to them rather than popularizing the distorted view advocated by these terrorist groups.

2. Engaging Terrorist and Jihadi's in dialogue- In the contemporary world, non-state actors particularly

terrorists groups are emerging as major stake holder in the humanitarian crisis which the world is facing. Recently, a large number of Muslims from all around the world are joining the ISIS impressed by their distorted Jihad ideology thinking that it will provide them the direct ticket to Heaven. But what is needed is to engage these terrorists and Jihadi's in dialogue. Dialogue provides the way to mold their extremist ideology and to explain them the fundamental principles of Islam. This will help them in gaining the true understanding of Islam and to internalize the basic ethical practices which Islam teaches. The young minds are often vulnerable; therefore, such engagement will facilitate prevailing upon such youth and bring them back to the mainstream severing their ties with extremists.

3. Engaging in dialogue with Clergy- Clergy men or the religious scholars holds the supreme position as the religious head at local level as well as at the state level. A large number of Muslims be it literate, semi-literate or illiterate, all listen to these head and adhere to the sermons given by them. If these clergies are engaged in proper dialogue and present the true picture of Islam, then radicalization can be controlled. Clergies need to refute the distorted advocacy of Islam which are being propagated. It is not that Islam holds some prejudice or is against the modernity or secularism", rather what is lacking is the dialogue with the clergies at various level. Once an effective mechanism is established for engaging the clergies, it will be much easier to remove the misunderstandings of Islam within its followers as well as to the world.

4. Role of Academicians- At the intellectual platform, the attempt made by the scholars to understand this problem often end up generalizing the Islam in negative terms. Edward Said in his famous study "Orientalism" has said- "After Muhammad's preaching and career, the faith spread into hundreds of different regions and cultures, from China and India in the east to Morocco in the West, to Europe in the north and to Africa in the south. Each region and people who came under its sway developed its own kind of Islam. Thus, common people and academicians tend to forget that Islam is a world of many histories, many peoples, many languages, and traditions, schools of interpretation, proliferating developments, disputations, cultures, and countries. As a result, the work mainly carried out by right wing academicians has degraded Islam and its ethical and moral teachings. So, in this globalised era, the scholars particularly the mainstream western scholars needs to



re-evaluate their literary works which often ends up feeding anti-Arab and anti-Muslim hate mongers.²¹

5. Role of Journalists and Media People- In this highly globalized world, where information from one corner of world travels in a second to other corner of the world, role of the journalist and media people become highly important. They have not only emerged as the fourth estate but also the only hope of the world to present the right and wrong in its true context. Rather than highlighting the barbarous act committed by the so called Islamic terrorist groups on the name of Islam, the journalist and media should condemn this act by showing the true meaning of the Quranic verse and Hadith. In this era of consumerism, every individuals owns a communication set be it television or radio, therefore, when the media house will contest the distorted views vis a vis the correct views of Islam either through holding dialogue, discussion or a special program, the common people will become more aware of the essence as well as true tenets of Islam. This will also provide voice to the liberal and modern Muslims.

Conclusion:

Rising terrorist activities around the world has given way to the un-imagined barbarous acts committed by these groups. With the addition of ISIS as a new entry in Islamic Terrorist Groups, a competition has been started among these groups. Recently, the Boko Haram overtakes the ISIS as the most deadly terrorist group.²² Therefore, it is more than obvious that these barbarous acts are in no way associated with Islam and practices within. Islam has become the victim of the political violence which has been initially spread by the state government. Spread of the terror by few individuals on the name of Jihad has brought the bad name to the Islamic community all over the world. Particularly, in West the Muslim community is facing the brunt of it. Global Terrorism Index 2015 also shows that Islamic fundamentalism was not the main cause of terrorism in the West over the last nine years.²³ It thus makes it obvious that it is misinterpretation and unethical interpretation of Islam and its tenets that is responsible for articulating Islamophobia in different parts of the world, rather than Islamic Fundamentalism. Misinterpretation is being done by some vested interests and power hungry individuals both by its followers of Islam as well as by outsiders and they are taking advantage of impending modernization within Islam.

In all religion there is uniformity on the teachings of basic ethical, moral and human values despite of their differences towards attaining salvation. These commonalities among all religions have the potential to surpass all the dissimilarities between them. Religions are not meant for separating communities; rather the common teachings and preaching which are largely ethical in nature are the connecting chords. Echoing the same thing, Prophet of Islam (pbuh) said that 'a believer is one who likes for others what he likes for himself'.²⁴ Thus the ethical and moral system of Islam, like all other religions encompasses equality, honesty, truthfulness, love, compassion and most importantly tolerance which are the bedrock for establishment of peaceful society.

Endnotes

- ¹ "Glimpses of World Religions", (Delhi: Jaico Publishing House, 2001), Pg.6-7.
- ² Steven Mintz, "What is Ethics". Accessed on June 8, 2016. See <http://www.ethicsage.com/2010/12/what-is-ethics.html>
- ³ Peter Singer, "Are Ethics and Morality the same thing". Accessed on June 8, 2016. See http://tolkresource.org/tolk_classes/areas/ethics_all_about/the_same_things/index.htm
- ⁴ Ibid, no. 1, Pg.186-187.
- ⁵ Stanford Encyclopedia of Philosophy, Religion and Morality, September 27, 2006. See <http://plato.stanford.edu/entries/religionmorality/>. Accessed on June 1, 2016.
- ⁶ Ibid, no. 5.
- ⁷ Ibid, no. 5.
- ⁸ Ibid, no. 5.
- ⁹ Ataulah Siddiqui, "Ethics in Islam: Key Concepts and Contemporary Challenges", *Journal of Moral Education*, Taylor and Francis, Vol 26, No. 4, 1997. Published online July 7, 2006. Pg-423-431. Accessed on June 1, 2016.
- ¹⁰ Ibid, no. 9.
- ¹¹ Ibid, no. 9.
- ¹² Ibid, no. 9.
- ¹³ Amritra Venkatraman, "Religious basis for Islamic Terrorism: The Quran and Its Interpretation", *Studies in Conflict and Resolution*, Taylor and Francis Group, October 30, 2007. Pg-229-248. Accessed on June 1, 2016.
- ¹⁴ Ibid, no. 13.
- ¹⁵ Ibid, no. 13.
- ¹⁶ Ibid, no. 1 pp-186-187.
- ¹⁷ Mark Lilla, "France: Is There a Way Out?" *New York Review of Books*, March 10, 2016. See <http://www.nybooks.com/articles/2016/03/10/france-is-there-a-way-out/>. Accessed on June 11, 2016.
- ¹⁸ Olivier Roy, "What is the driving force behind Jihadist terrorism?" First Published on December 18, 2015. Republished on March 23, 2016. See <http://insidestory.org.au/what-is-the-driving-force-behind-jihadist-terrorism>. Accessed on June 11, 2016.
- ¹⁹ Open letter to Dr. Ibrahim Anwad Al-Badr alias Abu-Bakr Al-Baghdadi and to the fighters and followers of the Self-declared Islamic State, September 19, 2014. See www.LettertoBaghdadi.com
- ²⁰ Dobroslawia Wiktor-Mach, "On Secularization, Modernity and Islamic Revival in the Post-Soviet Context", *Ajtor*, No.175, 2011. Pg-393-409. Accessed on June 2, 2016. In the article the author shows that contemporary Islam do not fit into "Islam as a secularization-opposed force" thesis as argued by Gellner who possess the question as to why is Islam so secularization-resistant. See <http://www.jstor.org/stable/41275214>
- ²¹ Stanley Reed, "Cruelty and Silence: Baghdad's House of Horrors", *New York Review of Book*, Kanan Makkiya, "Cruelty and Silence War, Tyranny, Uprising and the Arab World", June 27, 1993. See <http://www.nytimes.com/1993/06/27/books/makkiya-cruelty.html>
- ²² 2015 Global Terrorism Index Report, *Institute for Economics and Peace*. Pg. 6.
- ²³ Ibid, no. 21
- ²⁴ Maulana Wahiduddin Khan, "Ethics and Morality in Islam", *World Focus*, May, 2014.



Acharya Narendra Deva's Views on Ethics and Buddhist Philosophy in the Realm of Contemporary World: An Appraisal

Pratyay Dutta

The significance of Acharya Narendra Deva as a modern Indian socio-political thinker can be traced on a careful study of his numerous teachings, speeches and discussions indicating a process of evolution of his social, economic and political concepts responding to the shifting environment of India and the world outside. He strongly believed that the Gandhian ideas based on morality and ethics could be the only solution to meet the basic needs of a society both developing and developed. Broadly speaking, Narendra Deva had accepted ethical ideal of his guru, i.e., Gandhi, and practised it fully in his entire life and outlined that in a civilized society the first necessity of man was not so much food as cloth. While pointing out the necessity of ethics in the ambit of modern life, he wrote: "You can go about anywhere in the world without feeling ashamed even if you have remained hungry for some days. But modern civilized society does not allow you to move about naked even in all the parts of your house, and hence even thought it may not be possible for every man to grow his own food, he should produce at least his own cloth; and fortunately this is much simpler and more within one's own power than the production of food."¹ He further wrote: "Besides, on the moral plane, khadi is particularly the emblem of a peaceful and non-violent order. It is suggestive of industriousness, bread, labour, non-exploitation and self-expression."² Like Gandhi, he gave the highest priority for the removal of rural backwardness and consequently, he was completely in favour of an innovative technology that could help in bringing an all round development in a developing society. Deva had a forceful urge to bring about social justice, processed through a strong vein of idealism and always expressed deep concern for the downtrodden Indian masses. In fact, he remained a path finder of the socialist movement in India and strongly believed that freedom was the first postulate for the establishment of the socialist society in India. Conclusively, he felt that without political independence the socialist programme could never

become a reality. It was Gandhi, who first demonstrated the powerful effect on his countrymen of renouncing wealth for the sake of human service rather than personal salvation and Deva had trodden the same pathway into India's heart. Besides, he always emphasized the moral and cultural elements of Marxism, but in the Indian socio-political context, he said that class conflict was already in existence and the real question was on whose side you were going to stand. That is why; Gandhi and Narendra Deva wanted the historical stream of the cultural progress of India, in order to sustain the flow of continuity. As a believer in Buddhist ideology, Narendra Deva's entire socio-political ideas were of a new social order purely based on universal love, ahimsa, morality and most importantly the role of ethics in Indian politics. Unlike Marx, Gandhi and Deva persistently put emphasis on moral force and on the realization of one's own self and there was no place for violence in their whole socio-political philosophy. The purpose of the article is to highlight the impact of ethics and Buddhism on Narendra Deva's socio-political ideas and its relevance in the 21st century.

Influence of Buddha and Contemporary Conditions

Acharya Narendra Deva held a prominent position among the 20th century leaders of India and he was widely read in history, culture and religion. In fact, he realized that distortion of religion and misinterpretation of history and culture did more harm to Indian social life than foreign invasions and domination for centuries. Under the leadership of Gandhi, he took upon himself the task of fighting for religious, social and economic equality within the purview of Indian society. Deva extensively studied the history of human relationship in the Indian society. At the same time, he was particularly impressed by the work of Lord Buddha and believed that political revolution of the Indian society was preceded by the religious and social



revolution of Buddha who took the stand against the Shastras which preached sacredness of caste system in Hindu society. Buddha taught the noblest doctrine of love for all and in this context Narendra Deva's ideology on compassion was quite similar with the teach ideas of Swami Vivekananda. According to Narendra Deva Buddhism was a great revolution – it started as a religious revolution but developed into social and political revolution and compared it with the philosophical foundation of French Revolution.³ He also held that the history of social reform movement in India Lord Buddha preached non-violence as a way of life and the latter called it as a 'New Life Movement' of India. Deva preached against the then Chaturanya system of Indian society and the view that Sudras and women could not become Sannyasis. In the following years he was massively impressed by the Tripitaka statements which read that 'real religion lives in the heart of man and not in the shastras'.⁴ About Buddha, Acharya said: "No man ever lived so godless yet so godlike. During the medieval period of Indian history, Lord Kabir launched a campaign against the evils of caste system in the Hindu society, yet Hindus did not follow these social reformers."⁵ Narendra Deva under the teachings and inspiration of Lord Buddha wholeheartedly cherished the ideal of society based on equality, liberty and fraternity. Under the impact of Buddhism, the latter studied the Hindu social system objectively and dispassionately and felt that though Hindu culture is completely based on high ideals of non-violence, tolerance, love and humanitarian service but the social life suffered by its inherent contradictions. As a believer in Buddhist philosophy of *Dharma* and *Moksha*, he said: "The ideals of freedom, equality and justice could not be realized in practical social life. The gap between theoretical ideas and practical life in Hindu society was the main cause of its weakness and consequent subjugation for centuries. The Hindus were never a society as an organized system of individuals with a common purpose. They were always a system of castes with different rights and purposes. Hindu society as such does not exist. It is a collection of castes, each caste is conscious of its existence. It is not even a federation."⁶

Narendra Deva possessed a world mind and the foundation of his concept of the unity of the human

race was his abiding love for the nation. Meanwhile, he subscribed to the novel concept of the citizenship of the mind, citizenship of ideals without the restrictiveness of nationality or race and shared this quality with Gandhi and Loknarayan Jayaprakash Narayan respectively.⁷ However, he had firm faith in democracy as a government of the people but he opposed the tendency of democracy excessively to lean on elitism. In a country like India where there is so much of poverty and caste distinctions, he was convinced that it undoubtedly leads to increase towards material power of the upper classes and observed: "Democracy applied to these classes only and has no meaning for the masses. I agree with the Western socialist thinkers who believed that the political democracy has no meaning in the absence of economic democracy."⁸ Deva believed in the principle of *Satyagraha*, combining moral and spiritual principles with pragmatic considerations and categorically praised for the way by which Gandhi experimented with the method of *Satyagraha* in South Africa or during 1942 'Quit India' movement. It is a fact that Marxism of Narendra Deva was enlightened enough to come to term with both personal and intellectual levels. At the time of 'Quit India' movement, the socialists and Gandhi came closer to each other and he derived his firm faith of a classless society from Marx. Afterwards, his belief in the possibility of effective peaceful changes in Indian society through *Satyagraha* or Civil Disobedience exclusively came from Gandhi. He felt that Gandhi's constructive programme must be supplemented by a class organization for the total abolition of vested property rights. At the same pace, Narendra Deva valued Buddha and Gandhi's methods of application of morality and ethics, unique in nature to revolutionary techniques and which to him, made Gandhi and Buddha a path-finding contributor in the history of human civilization. As a Buddhist Acharya emphasized freedom in India is to be wielded with the sole need to provide bread to all, whereas Gandhi emphasized that means are more important than the ends. Interestingly enough, both Gandhi and Narendra Deva always underlined the concept of political decentralization. Deva's whole socio-political thought process was greatly influenced by Buddha and Gandhi's ideas like non-violent resistance to injustice, purification of means, moral compassion, ethical value of civilization, and above all the doctrine of civil-



disobedience, although, he was not a Gandhian or a Buddhist in a traditional mould. Briefly, Deva was never a mental slave to any particular individual or an ideology and at the same time, he was not opposed to Marxism. Marxism and Buddhism had its own influence on him and he amalgamated it with his rational mind. As he earned distinction as an intellectual and a social reformer, Narendra Deva secured for himself a social and political position of great respect in India.

Narendra Deva's Moral Compass and his Ideas on Cultural Reawakening

Acharya Narendra Deva, generally called Acharyaji or Narendra Deva who succeeded Gandhi to the leadership of his Indian Socialist Movement, primarily aimed at building a new India of Gandhi's dream. He shot into fame as the father of the Congress Socialist Party (CSP) and was also Gandhi's spiritual heir. There is, however, no such declaration of Gandhi in its favour as it was in the case of Jawaharlal Nehru whom he named as his political heir. The reason is obvious. Gandhi wanted to leave no sect after him and hence the question of a declared spiritual heir did not arise at all. But there is enough indirect evidence in its support. Gandhi evaluated Narendra Deva's spiritual attainments very high, attached highest value to his views, and according to Jayaprakash Narayan, even looked upon him as his superior in certain aspects. That is why during his own life-time Acharaya was treated as such by those who were near to Gandhi and knew him. Gandhi's nomination of him as the first satyagrahi in the Individual Satyagraha of 1940 only set a seal on it. Contextually, Narendra Deva had been a nationalist no doubt, but his nationalism, like that of Gandhi, had been of the highest order. Really speaking, he was a 'universal man', 'a citizen of the world', who made no distinction of any kind between individuals and who never thought in terms of group, class or national loyalties.* He had studied with reverence the scriptures of nearly all religions and once expressed his philosophy of life thus: "We pride not on any one country, we insist not on any one religion, nor do we enchain ourselves to any one sect or caste. To roam about in the garden of world's best thoughts will be our diligent study, to digest them will be our constant endeavour and to eliminate their contradictions will be our unfailing creed. To develop an attitude of universalism by

synthesizing the peculiarities will be our endeavour in the realm of thought."¹⁰ Such had been Narendra Deva, a combination of a sage and a saint, whose life, work and thought later shaped the philosophical foundation of the socialist movement in India. The evolution of Gandhi and Narendra Deva's ideas are proving much more relevant today than were realized during their life time, and their relevance in the contemporary times is bound to increase if mankind is to save itself from either nuclear war or ecological disaster. He creatively interpreted and expounded his socio-political ideas in the changed conditions of the post-war world in general and Indian conditions in particular. Acharya stresses that India has to chart a path which must be qualitatively different from Capitalism and Marxian Communism, because according to him both are genetically the same. That is why; his psychological affiliation to Gandhi eventually provided the intellectual fervour for the evolution of his ideological ideas.

Narendra Deva's contribution to modern ethical politics or Gandhian thought has been highly significant, as recognized by even those who are considered to have been very close to Gandhi and good interpreters of his socio-political thought. There is no field of thought which he did not touch. To begin with ethical principles, Acharya tried to remove a prevailing misunderstanding that non-violence, as indicated by the construction of the world itself, was something negative. Hence, he generally used the words "love and compassion" for it, emphasizing its positive aspect. He applied the ethical principle of non-possession to institutions as well, something not absent from the mind of Gandhi but which was not enforced since he lacked an occasion for it. Deva laid special stress on it by showing how institutions living on permanent funds violated some Gandhian ethical tenets and he made his socialist movement give up reliance on such funds. At the same pace, he also clarified that the Gandhi's concept of trusteeship stood for the abolition of private property. This interpretation of his had been questioned by some, but Narendra Deva had the support of eminent Gandhians like K.G.Mashruwala, Acharaya Kripalani and Kaka Kalelkar, and also of Pyarelal, who had been a secretary of Gandhi.¹¹ He also explained that the fearlessness does not simply stand for lack of fear in one, but also of the tendency to frighten others



and gradually removed the misconception that Swadeshi implied any narrowness of mind and behavior. Narendra Deva could never appreciate a secularism which denounced religions, but, like Gandhi, he was a very staunch advocate of *sarvadharma-samabhava*, equal regard for all religions, and he actively worked for it. Besides, under the spell of Buddhism, he tried to get Hindu temples opened to men of other faiths as well, and for that he carefully studied the scriptures of other important faiths to extract their essence for a better understanding of religions of others and one's own. The philosophy of action he mostly drew from the *Gita* and reminded the people that India had not become a great nation through negativism and indolence, but rather through a dynamic willingness to meet the problems of the day and to solve them morally.¹² Along with the *dharma* of action, Deva taught the *dharma* of unity to the people of India. The unity of India, the unity of the Indian civilization, is the Bharat-dharma, the spiritually-based and spiritually-dedicated way of life. However, Narendra Deva supported Gandhi's non-violent interpretation of history by citing examples from the cultural history of ancient India and in this regard he defined the Gandhian concept of revolution, for which probably Gandhi had not felt any need but which Acharya seems to have felt in view of the confusion prevalent about it in society. A revolution, according to him, implied an all round social revolution in society, and he held that all such revolutions have their firm base within the confluence of spiritual ideas. He categorically said: "My aim is to bring about a threefold revolution- a change in the hearts of the people, a change in their way of life and a change in social structure. I define it as a change of heart, a change of values."¹³

Narendra Deva's Classical Revival and Spiritual Nationalism under Gandhian Filament
Narendra Deva was a believer in the Buddhist philosophy of compassion, non-violence, moral sense and mutual love. Throughout his life, he was deeply interested in education and regarded it as the principle vehicle for a political, social and economic revival of the country. As a thinker of the Congress Socialist Party (CSP), he represented a rare synthesis of certain qualities which would ordinarily appear to be incompatible in nature. But he wanted to achieve it by peaceful methods, rejecting violence, even on the

pragmatic grounds of it's wanting in wisdom to impose limits on itself, of bringing many more problems in its train, of lacking in capacity to strike at the root of any problem and of the inability of any evil to conquer another evil. As a result, he emphasized the sociological truth behind the principle of the purity of means and rejected violence, as it could never be a right instrument for any real and abiding change.¹⁴ Narendra Deva's basic intellectual framework was totally based on the ides of Marxism, but he accepted some aspects of Gandhian thoughts and methods, which did not seem to him to be antagonistic to the basic premises of his personal thinking and beliefs. In the context of India, he tried to bring about an alliance between the socialist movement and the nationalist movement. Hence, Gandhi and Narendra Deva were against capitalism as well as communism and placed the ideal of a non-exploitative, egalitarian social order before the world. In Deva's view, democracy under all circumstances must be the sheet anchor of socialism and *dharma*, which was the repository of the nation's soul. If *dharma* is destroyed, the nation perishes. In the post-independence years, Acharya regarded cultural tolerance was the key stone for the feeling of mutual affinity-trust and felt that Indians would have to put first into practice Gandhi's concept of humble nationalism and not the arrogant-intolerant nationalism borrowed from the West. Being a nationalist, he was not at first enamoured of the religious-spiritual ideals of life and yet he was a radical humanist, and even a *sarvodayite* all pulled into one. His views on class struggle, difference of caste and colour, nationalism, internationalism, war, political freedom, social and economic justice, equality, morality with an ethical conduct, depressed class etc. were so unorthodox and advanced that he considered himself a world citizen and pleaded for the establishment of a real socialism in India based on the philosophical foundation of Buddha and Gandhi respectively. His political ideal was a government-free society, which did not mean a society devoid of government, with anarchy prevailing in it. He meant by it a society in which the citizens possess control over them and discharge their duties, eliminating the need of an outside control to the utmost. This is what he also understood by self-government. In accordance with this view of his, he called a 'welfare state' and 'illfare state', and instead wanted a welfare society.



But his process for a government-free society was a gradualist one, the first step being the establishment of a 'good government' and then progressively advancing towards a government-free society.

Narendra Deva did not deny the importance of polities, but he was certainly against a politics which created divisions amongst the people and laid too much stress on power politics to the neglect of developing the power of the people. In this context, his thinking was quite similar with that of Jayaprakash Narayan who also laid emphasis on people's power or *lokniti*. Though Acharya was ideally opposed to political parties with their narrow loyalties and ideas and regarded them as outdated in this age of science, he was not for their immediate abolition but wanted them to be reformed so that their mutual animosity was gradually replaced by good relationship between them. He did not; however think that only organized opposition could keep the party in power on the right track. For that, he attached great importance to the existence of a band of workers who, while keeping aloof from power politics, would stand between the rulers and the people, pointing out to both their mistakes, fostering mutual trust between them and also working for strengthening the power of the people. However, all this did not mean that his outlook was parochial and envisaged a world without walls. The outline picture of the society of his conception delineated above may seem utopian to many and some may even have genuine differences with him on it, but what rather matters more is if his basic approach is correct, and of this there is probably no doubt. In this context, it can be argued that many ideas of Gandhi rejected by his contemporaries are being hailed today as highly relevant. In any case, the primary question is how to work for its realization. Narendra Deva was aware of the difficulty of the task and he preferred moving towards it patiently step by step, every step directed towards the objective. His technique, as advocated and practised by him, can be divided under the four heads of constructive work, education, planning and *satyagraha*.

Philosophy of Religion and as a Disciple of Gandhi

Narendra Deva was a religious man and believed in the kindness of God. He felt that each man has a conscience of his own and should try to purify his

heart according to the dictates of his conscience. Under the influence of Buddhism, he believed that prayers made in right direction were bound to bear fruit. He was born in an orthodox family and as such this influence lasted on him till his last. Like Buddha, he believed in the philosophy of *Moksha* which not absolute merger in God. If one was to get salvation the best way out was to love mankind and fellow beings and show sympathies to the weak and downtrodden. He was social reformer and from his very childhood he participated in social institutions and organizations. He sponsored many such associations. According to him, society was a complex organism and social problems could only be solved in a congenial political system. His receptive mind accepted many changes and he came to the conclusion that there should be gradual evolution in the society. He felt that in order to improve Hindu society it was essential that the society should have contacts with the external world and there should not be any caste arrogance. According to Narendra Deva there is very close relationship between economic, social and political systems. These go hand in hand. It was futile to expect a progressive society in the face of unhealthy laws. Laws were the product of society and social systems. Hence, political institutions were also product of social institutions. In Narendra Deva's own words: "You cannot have a good social system when you find yourself low in the scale of political rights, now can you be fit to exercise political rights and privileges unless your social system is based on reason and justice. You cannot have a good economic system when your social arrangements are imperfect." According to Acharya, social changes could be brought about by various methods of which the most important is to mobilize and consolidate ideas, and form a particular forum so that the masses or those interested in bringing about a social change could express their views till their purpose was achieved. Narendra Deva favoured the ideals of state interference for bringing about social change. In peculiar circumstances the authority of state was needed within the purview of the society to get rid of some chronic social evils. First of all voluntary associations and organizations should take up this responsibility. The conscience of the people should be touched and other methods should be adopted but when all these have failed, the state should be brought in for collective social betterment.



Acharya Narendra Deva, as he is known to millions, was a trusted and faithful disciple of Mahatma Gandhi. He accepted the *Sarvodaya* ideal of his guru, Gandhi, and practised it fully in life. He had acquired his strength through renunciation, much as India's ancient sages were supposed to acquire magical powers through their austerities. When he joined Gandhi, the Mahatma told him to simplify life and Narendra Deva took his words to heart. Deva had never urged anyone else to follow his way of life. And he went his own way with a striking serenity. He strongly felt that laws, without a change in people's hearts, were not very effective. He did not try to put into effect a pre-arranged solution to 'uplift the masses.' He sought to prepare them so that they themselves could arrange their own lives to their best benefits. The seeds for a full and meaningful life are there in India's half-million villages. Narendra Deva was preparing the ground so that these seeds might grow and bear fruit.¹⁸ He mostly drew inspiration from the *Bhagavad Gita*. For him, as for Gandhi, it is the supreme book of human guidance. This great Sanskrit poem, imbedded in a large work called the *Mahabharata*, is later than the *Vedas* and *Upanishads*, and fills a role in the Hindu holy books something like that of the New Testament in Bible. Acharya practised *Karma-yoga*, the way to God through action in the world. He wrote: "You must perform every action sacramentally, and be free from all attachment to results."¹⁹ Acharya had read and admired the scriptures of other religions, and he knew that the way of love was discovered long ago in many places outside the mountain-walled subcontinent of India. It was then that spiritual freedom became one of the beacon-lights of his life, and it remained so till his death. While under the spell of Marxism, Acharya was much impressed by the Marxian philosophy of revolution. It seemed to him a surer and quicker road to the freedom of a country and the emancipation of its masses than Gandhi's technique of civil-disobedience and non-cooperation. In fact, the thrilling triumph of the great Lenin in Russia, accounts of which he consumed with unsaturated hunger, seemed to establish beyond doubt the supremacy of the Marxian way to revolution. Although a Marxist, Deva never became a protagonist of Russian communism and considered socialism a complete theory of socio-economic reconstruction.²⁰

The Synthesis of Religion and Politics and an Apostle of Gandhian Ethics

Narendra Deva was influenced by Gandhi's ideals and mode of actions. The two distinct personalities came closer in 1929 and he actively supported Gandhi in politics as they shared similar ideas. Despite their ideological differences regarding the application of socialism on Indian soil, yet they placed great importance on the role of political freedom towards the nation building process. He wholeheartedly agreed with Gandhi's idea about the *harijans* and believed that the *harijans* should be made an integral part of the Indian society in particular, of its Hindu majority and they could not be kept secluded from the mainstream Indian society. According to Narendra Deva, Gandhi's spiritual thinking was devoid of any religious fanaticism or conservatism and consequently, in his life and thought, there was an emphasis on the synthesis of science and spirituality. Deva's ethical ideas antedated his powerful association with Gandhi and his socio-political ideas developed later which bore the impress of Gandhi's thinking. In this context, Gandhi's social thinking appealed to him and the development of his social thought, both prior to and after independence, was in accord with the basic ideas of Gandhi. Narendra Deva was not a politician in the Machiavellian sense, but he did what his knowledge taught him. He never lost touch with his spirituality even in the moments of his great political engagements. He, like Machiavelli and modern politicians, Marxists and others, did not separate religion from politics but tried to provide a synthesis of the two. Marx and his followers did not assign any part which religion has to play in determining individual and social actions. But quite contrary to them, Gandhi and Narendra Deva primarily based all their social and political doctrines on the religious and spiritual view of human life. According to Narendra Deva, politics devoid of religion is a death-trap because it kills the soul. His idea of combining religion with polities is a challenge to those political thinkers who take a partial view of human life.²¹

Narendra Deva drew inspiration from all the religions of the world and in this regard, he belonged to the whole world by extending his love and sympathy to the whole humanity, he was primarily nurtured in the traditions of Hinduism. In a world where the rulers of nations are relying more and more brute force and



the nations trusting their lives and hopes to systems which represent the denial of law and brotherhood, Gandhi and Narendra Deva both stood out as an isolated and most impressive figures. However, the orthodox occidental scholars think that Narendra Deva was not a political thinker as he did not exclusively dilate on the state and its related problems. No doubt, some people speak of Narendra Deva as a mystic and religious man like Gandhi, he was best known to the world as the political leader of India, no matter of a different type and caliber. He believed in the sovereignty of the people based on pure moral authority. He was only opposed to the oppressive authority and to the theory of absolute sovereignty of the state, but not to the ideal state itself. He was not a visionary but a practical and logical thinker, and he related his theory of government to his conception of human nature. He was not only a great individualist and a practical idealist but he was also a first-rate egalitarian and of course, a socialist. From Narendra Deva's application of socialism on Indian soil, however, it must not be thought that Acharya was a mystic and his socialism was only a matter of the mind.²⁰ Narendra Deva's idea of morality is the apex of Gandhian socialism. Thus, Acharya's political philosophy was a fusion of individualism, idealism and socialism. As a socialist veteran in the Congress Socialist Party, Narendra Deva left a monumental legacy to the independence movement and those who came after him could build upon the works and victories which he had won. In his battles against mammoth orthodoxy, lethargy and bureaucratic oligarchy, he was largely successful. Narendra Deva freed the nation from lethargy and stagnation, and in awakening the people inspired them with a promise of awakening India, an Indian united, strong and capable of action, self-reliant and on the road to victory. Thus his method of action was democratic and constitutional and he had stirred the popular imagination and taught the people the necessity for united action. Though his primarily spiritual personality is too deep to be fathomed unless one has a requisite spiritual experience, there is none who would not be impressed by the range and the depth of his ideas, and his immense efforts to build a non-violent social order in the country. Acharya possessed a scientific temper, he had made his personal life as scientific as he could, and he welcomed every advance in science. But he was also aware that a rudderless science poses

an unprecedented danger for humankind, and hence, he wanted it to be bridled by spirituality and his concept of spirituality was not devoid of moral and social contents, recognized universally. He also held, like, Gandhi, that his search for non-violence in India was bound to prove of world significance. Narendra Deva's thinking reflected the world's best trends in his optimistic world-view, ethical conception of civilization, loss of individual freedom and aggressive nationalism. He kept the Gandhian thought alive in post-independent India, when the general tendency was to forget it as if its relevance was confined only to the freedom struggle. And he did it creatively, enhancing its relevance in the eyes of the world. He picked up the thread of nation-building from where Gandhi had left it by his death. Moreover, the Indian socialist movement under the leadership of socialist veterans like Narendra Deva, Rammanohar Lohia and Jayaprakash Narayan had given rise to the hope of a moral regeneration in the country under the Gandhian path of reawakening of 'soul force.'

Conclusion

The role of Gandhi and Acharya Narendra Deva in the history of revolutionary leftism finds a peculiar place by virtue of having its own points of resemblance as well as difference with the models of British Fabianism and Marxian Communism. This type of leftism emerged on the scene of Indian politics when Gandhi came forward to make his experiment with his techniques of *ahimsa* and *satyagraha* not only to overthrow the colonial system but also usher in a new social and economic order. The real significance of the non-co-operation movement under Gandhi's leadership effectively provided recognition to the gradual discontent which was brewing within the purview of intellectual climate and created a revolt which became an indirect factor in the origin of the left-wing movements in India. Its role can be seen in retrospect as creating the appropriate psychological preconditions under which labour and socialistic ideas of the West could be made receptive.²¹ Narendra Deva, father of the Indian socialist movement, was a scholar, an educationist and an ardent nationalist. He consistently stood for moral and ethical regeneration in politics and made valuable contribution to Indian peasant and socialist movement. He was a great optimist and had faith in man's total capacity to distinguish between true and false, right and wrong.



He tried to apply logic to politics, religion and social philosophy and was branded as a special category of Indian progressive leader. The role of Narendra Deva has an importance of its own in making a unique blending of the two varieties of leftism i.e. Fabian (British Party Type) and Marxian without repudiating the line of Gandhi. Though, he had sharp ideological differences with Gandhi in many respects. Narendra Deva subscribed to the line of Gandhi in holding that during that time Congress was a national organization bearing no difference between the classes and the masses. No other variety of leftism except that of Narendra Deva and Gandhi could triumph on account of being in tune with the ethos of Indian nationalism. Narendra Deva felt that Gandhi adhered to the path of non-violence and mass mobilization in a constructive way. It is a fact that the left-wing could not play an independent role in the freedom struggle on account of the overshadowing role of the Indian National Congress led by Mahatma Gandhi. Narendra Deva represented leftism in his own way by arousing

the masses and as a result of this, Indian freedom struggle became a revolution of continuity. The real contribution of Narendra Deva in the womb of Indian politics, should, however, be seen in his stress on a secular, rational and scientific outlook.

Endnotes

- 1 Acharya Narendra Deva, Article and Speeches, Atmapana Publications, Delhi, 1988, pp. 17-18.
- 2 *Ibid.*, p.22.
- 3 Acharya Narendra Deva, Socialism and National Revolution, Padma Publications, Bombay, 1948, p.6.
- 4 *Ibid.*, p.17.
- 5 *Ibid.*, pp.20-21.
- 6 Acharya Narendra Deva, Socialist Times and the CSP, CAP Publications, Bombay, 1981, pp. 14-15.
- 7 *Ibid.*, pp.10-11.
- 8 *Ibid.*, pp.6-7.
- 9 R. Mehta, *Socialism Reconsidered*, Padma Publications, Bombay, 1948, p.46.
- 10 *Ibid.*, pp.6-7.
- 11 For a detailed understanding of Gandhi's philosophical influence on Narendra Deva which later moulded the moral compass of Narendra Deva and the course of the socialist movement in India see P.L. Lakshmi, *History of the Congress Socialist Party*, National Publishers and Publishers, Lahore, 1948, pp. 29-21.
- 12 *Ibid.*, pp.78-79.
- 13 From Bhawan, *The Heritage of Acharya Narendra Deva*, Janmabh. Vol XXX, No.15, February 1971, pp. 13-17.
- 14 *Ibid.*, pp. 21-22.
- 15 *Ibid.*, pp. 21-22.
- 16 For a detailed understanding of Narendra Deva's ideas for a future India under socialist path, see Madhu Limaye, 1974 *The Age of Hope: Phases of the Socialist Movement*, 1st Ed., by M.C. Mehrotra, Arun Books, Delhi, 1998, pp. 40-51.
- 17 *Ibid.*, pp. 13-14.
- 18 *Ibid.*, pp. 78-79.
- 19 Ramamurthy Lalith, *Moral, Gandhi and Socialism*, National Publishers, Hyderabad, 1963, p.121.
- 20 Acharya Narendra Deva, n.1, pp. 35-36.
- 21 Suresh K. Dhar, *Narendra Deva's Role in the Present Revolution in India under Socialist Flag*, Janmabh. Vol XXXIX, No.19, April 19, 1999, pp. 11-12.

What is Humanism?

"Humanism is a democratic and ethical life stance that affirms that human beings have the right and responsibility to give meaning and shape to their own lives. Humanism stands for the building of a more humane society through an ethics based on human and other natural values in a spirit of reason and free inquiry through human capabilities. Humanism is not theistic, and it does not accept supernatural views of reality."

The IHEU Minimum Statement on Humanism

Knowledge, ethics, value and meaning

A humanist is someone who recognises that we, human beings, are the most curious and capable curators of knowledge in the known universe. To gain knowledge, we must use our reason and experience to understand the world. And we may create or partake of the great artistic fruits of humankind to enhance our emotional palettes, deepen our empathy and enrich our understanding. But we reject any reliance on blindly received authority, or on dogma, or what others may claim is divine revelation (because we don't believe we get tip-offs about truth from a supreme being beyond time and space. That would be cheating!).

A humanist is someone who recognises that we, human beings, are by far the most sophisticated moral actors on the Earth. We can grasp ethics. We are not the only moral subjects (for example other animals deserve moral consideration, too!) But we have a unique capacity for moral choice: to act in the interests of welfare, advancement and fulfillment, or against it! To act well, we must take responsibility for ourselves and others, not for the sake of preferential treatment in any afterlife (even if we believed in it, that motivation wouldn't make our actions good!), but because the best we can do is to live this life as brilliantly as we can. That means helping others in community, advancing society, and flourishing at whatever we do best.

And a humanist is someone who finds value in themselves and each other, respecting the personhood and dignity of fellow human beings, not because we are made in the image of something else (we are a product of evolution, not the product of a divine plan), but because of what we are: a sentient, feeling species, with value and dignity inherent in each individual.

There is no reason to believe that "meaning" has to come from a supreme being. If you can write a sentence on paper which isn't nonsense, then you can create meaning! There is no divine plan or purpose, the humanist recognises, but we make our own purposes, tell our own stories, set our own goals. This gives life meaning.



(Courtesy: IHEU)

From Flexibility to Primacy: Ethics in use of market based mechanisms for Carbon Mitigation

Ms. Reva Prakash

Introduction

Market based mechanisms under the United Nations Framework Convention on Climate Change (UNFCCC) have gone on from according flexibility to becoming one of the main tools for mitigation action. In December 2015 at Conference of Parties-21, governments of the world came together to decide on the post-2020 Architecture For Multi-lateral action towards combating climate change by reaching an agreement by submitting their intended nationally determined contributions (INDC's). Parties have agreed to *definitely* limit the temperature rise to 2° Celsius and *hopefully* under 1.5° Celsius. An analysis report by UNFCCC secretariat of the INDC's submitted reveals that the aggregate effect of the commitments, assuming they are kept, is only sufficient to keep the global temperatures below 3° Celsius which is beyond the guard-rail of 2° Celsius.¹ It also mentions that nearly half the parties intend on using market-based mechanisms for meeting their commitment. Many parties had made it into a condition for implementation of their intended contributions, while others were open to their use (FCCC/CP/2015/7:38-40) and only significantly very few parties were against using carbon trading as a preferred means for achieving their mitigation outcomes. Thus, among other policy tools like carbon tax, subsidies for renewable energy technology, carbon trading enjoys considerable greater support. At COP-21, citing the report, Statement of Business Association submitted by groups, institutes and associations of businesses came out strongly in support of carbon trading with the tenor of the argument being that it offers a cost-effective way of addressing the negative externalities which can in turn ratchet the ambition and channel investments towards low carbon technologies. Within all these pronouncements is included reference to the idea of transparency, a dedication towards avoiding double counting as a way to ensuring environmental integrity. In light to these, is important to discuss the ethical dimensions of carbon trading by tracing its

theoretical underpinnings, justificatory arguments and criticism.

Framing and Solutions

The debate around the economic globalisation and globalisation of ecological issues found common interface in the framing of problems and seeking solutions for them. Globalised environmental degradation is an attribute of the continued march of the capital to remotest places on the globe. By integrating far-flung places into a global market system, the present model of growth and development organised around capitalist lines, depends on an ever increasing the consumption of resources and materials as its main driver with its march energised by fossil fuels (Newell 2008). Thus, as the debate on the effects of unprecedented intensification and integration of the world gained greater ground, so did the negative spill-over effects of the integration on environment start to become more visible (Rosenau 2007).

Stern Review of 2006 famously noted that "climate change is the greatest market failure the world has ever seen" and an externality with four key characteristics: global, long term, involves risks and uncertainties, involving major and irreversible changes emphasising three policy to effectively address climate change: pricing of carbon (tax, trading and regulation), shift towards low carbon technologies (renewable) and removing barriers towards adoption of energy efficiency. This reveals that trading in carbon is now a widely accepted market-based policy solution i.e. it utilises the logic of the market to reach effective solutions by designing mechanisms and policies that incentivises the actors (trade) rather than penalising them (tax and fines).

Global carbon² trading and concomitantly the carbon market evolved due to the compromise reached between the developing and the developed world to reach an agreement on Kyoto Protocol.³



Three mechanisms – Joint Implementation (JI), Emission Trading (ET) and Clean Development Mechanism (CDM) – were included at the behest and through much muscle-flexing of USA to accord flexibility to the developed countries with legally binding commitments to achieve their targets. CDM was termed the 'Kyoto Surprise', was included in the text on the pretext of 'meaningful participation' by non-Annex-I or developing countries especially India, China, Brazil and South Africa. It went on to become the corner stone of mitigation action and was the first global carbon trading mechanism.⁴ Clean Development Mechanism plugged into the cap and trade system by generating Certified Emission Reductions (CER's) at locations (developing countries) where the cost of emission reduction was much lower use by developed countries in meeting its commitments.

This had set the precedent for adopting carbon trading as a legitimate and pre-eminent mechanism for climate mitigation leading to evolution of regulated carbon markets. Despite evidence to the contrary on the effectiveness of carbon trading, especially under CDM, in achieving its purported aims of real emission reductions accompanied with promoting sustainable development in developing countries, the 2015 Paris Agreement has broadened the scope of the market in carbon trading and offsetting. As couched within the language of 'voluntary cooperation' Article 6 of Paris Agreement clearly points to use of market-based mechanisms through the use of 'internationally transferred mitigation outcomes towards nationally determined contributions' to promote 'sustainable development and ensure environmental integrity and transparency.' The form, content, rules and regulations will be decided over the course next four years. It is expected to be in place by 2020 in time for the Paris Agreement to come into force.

A close look at the ongoing negotiations and the debate outside reveals that discussions has moved from considering the ethical dimensions of carbon trading to fine-tuning of the apparatus. Much is being said to address the lack of environmental integrity and over the next four years, the rules and regulations will operationalise the concept as was done under Kyoto Protocol as well. For the two offsetting

mechanisms – JI and CDM – clauses of additonality and baseline became the indicators of environmental integrity. Sustainable development benefits were to be accrued through use of the additional finance to buy cleaner technologies that could reduce emission and generate the additional CER's. There is general agreement in both the proponents and critics of carbon trading over the compromise of environmental integrity of the mechanisms. This is evident in the all the supporting pronouncements over the need to ensure environmental integrity and cost-effective solutions.

Logic and Evolution

To discuss the ethical dimensions of carbon trading, it is first important to understand the underlying logic. The reference to the market based mechanisms for its proponents is the problem of addressing the 'negative externality' of pollution that stems out of the capitalist mode of production. Simply put, environmental bads like pollution – air, water, emissions, are not accounted for in the final price of a finished product as usually the producer does not have to pay for environmental degradation. This leads to externalisation of environmental costs leading to market imperfections that manifest in the form of pollution. In case of climate change, carbon emitted beyond the carrying capacity of the atmosphere becomes a pollutant and causes damage as it accumulates.

The negative externality it is argued can be largely addressed in two ways: Firstly, through a command and control system that involves taxing the polluter for pollution. Secondly, by employing use contraction and convergence system in which limits upon the emission is set. This limit declines over time enabling the parties to trade in permits of allowances. Carbon trading uses the second method to effect outcome of emission reduction in carbon.

Legitimacy and hegemony of neo-liberal ideology around the world has marked a clear leaning towards the second approach. Proponents of free market environmentalism argue that environmental degradation is a problem of commons and can only be addressed through market-based mechanisms. The problems of the commons as described by Garret Hardin in his 1968 book *Tragedy of the Commons*



stems from the absence of clear property rights over the common resource. As the incentive to preserve the resource with everybody and therefore, according to Hardin, effectively with nobody, the resource is open to extreme exploitation (Hardin 1968). This explains for proponents of free market environmentalism the continued degradation of environmental resources even with the proliferation of multilateral environmental agreements that is based on a regulatory understanding of managing environment (Anderson and Leal 2001). As a logical corollary, therefore, regulation through taxation and subsidies is eschewed as arguably these distort the market and lead to imperfect market outcomes.

The emission market in carbon outside the regulatory framework was first conceptualised as a solution by Richard Sandor, who is also known as 'father of carbon trading' (Paterson and Newell 2010: 110). Along with other colleagues, he was instrumental in designing and developing of the Chicago Climate Exchange (CCX) which became the first carbon trading exchange including corporations from USA, Canada, India, and China voluntarily trading in offsets committing to reducing 6% emissions by 2010 from their aggregate emission between 1998-2001. The exchange remained functional during 2003-2010 with recorded trading of 680 million metric tons of CO₂ equivalent (Intercontinental Exchange 2016) unloading its allowances into EU's European Climate Exchange.

Sandor, Bettleheim and Swingland's (2002) exposition bases itself on the Ronald Coase's *Problem of Social Theory* (1960) in which Coase argued that assigning property rights to public goods accompanied with means to transfer aided by property law and market regulations will lead to efficient use of resources. In this system the externalities get internalised after the rights are assigned for common property resources. Given the defined rights with means and law to aid transferability the parties can negotiate, given perfect information and low transaction cost, to reach optimum outcomes best suited to their requirements. Thus, they argue, that by ascertaining limits on the use of environment it can be treated as a "truly scarce resource". By its application in carbon emission by assigning clearly defined property in forms of allowances, the

externality of emissions will be internalised and the price of carbon, arguably, would signal the value placed on it by society denoting the reward placed on reduction of emissions. Further, they note that the experience of different market-based mechanisms in tackling the issue of acid rain and phasing out the ozone depleting substances have yielded results and thus amply demonstrates that the "convergence of environmental and financial markets by 'commodification' of natural resources" is a better policy prescription than a command and control way (Sandor et al 2002: 1608-1609).

Cap-and-trade and offset mechanisms are also better geared to exploit the least-cost opportunities to cut emissions. These are able to achieve two things: they are able to achieve at a reduction target at lower cost and are also by the very logic able to achieve greater emission reduction at the same cost. This helps increase the ambition of the industry and the market for achieving greater emission reduction. The price signal driven by the profit motive can lead sources to project their comparative advantage over other sources and make profit out of pollution reduction. This assigning of social costs to public goods then leads to the understanding that cap-and-trade are efficient and successful, from both environmental and economic view point, as they offer low cost method for managing environmental risk by harnessing the entrepreneurial skills of industry and providing it with flexibility in method, location and timing of emission reductions.

Thus, in the carbon market, carbon is traded as a commodity that is made scarce due to a policy of cap and trade and offsets whereby different countries, industries and actors have limits on their CO₂ emissions and permits are awarded to parties for their emissions. If a party overshoots its allowance, then it has to buy allowances/permits to make up for the excess emissions. The party that is within its limits or below it can sell its allowances. The buyer, therefore, pays to emit more than its permitted share, and the seller can make a profit by emitting less. Purportedly, this helps countries and companies to limit their carbon emission by dis-incentivising emissions and incentivising the emission reduction as the system moves towards lower and lower levels of



allowances and limits. Arguably, this system can lead to net decrease in global emissions.

Environmental Ethics

Ethical considerations regarding carbon trading stems primarily from the commoditisation of an environmental bad or trading in polluting surplus. Other arguments flow from this. Highlighting the moral virtues of emissions trading (ET) mechanism, Caney and Hepburn (2011) categorise the ethical concerns into five broad arguments, namely, 1) owning what should not be owned; 2) alienating responsibilities that one should perform oneself; 3) emission trading and the vulnerable; 4) putting a price on the natural world; 5) does emission trading convert what ought to be a fine into a fee? Caney and Hepburn analyse each argument in turn and reach the conclusion that these do not sustain, and only the question of distributional justice remains important.

First, they argue that cap-and-trade systems can *ensure environmental protection* provided these are *suitably enforced*. Enforcement entails independent verifications of the measurement of output i.e units of emission reduction a project results in. Further, these caps are required to be lowered over time for reduction in over all emissions. Ostensibly, while regulatory policies like taxes or subsidies may lead to the same outcome and provide a price signal to the firm, they do not provide "the same confidence as cap-and-trade systems". The price signal within this system aid regulated entities to make better economic decisions by providing them to the choice. If the for internally cutting emissions is high, then the entity can buy allocations from another firm that has been able to reduce its emissions (Caney and Hepburn 2011: 6-7). However, Sepibus (2009) by analysing the institutional and procedural shortcomings in CDM demonstrates that even with the presence of an oversight mechanism that checked for indicators of environmental integrity (baseline and additionality) to determine the ability to reduce emissions. These in turn are the measured outcome of environmental protections and it was difficult for projects to guarantee due to the presence of several perverse incentives (Sepibus 2009:14-15). There are several studies that prove that the moral claim for commoditising carbon to protect environment is proved

false due to the presence of 'hot air' or wrongly accounted for emissions (See Lohmann 2010)

Secondly, they argue that it minimises wastage as it gives incentive to businesses to explore and exploit the opportunities that requires lowest investment. Governments on the other hand will rarely know where the cheapest possible abatement will be found due to information insufficiency that comes with it. In an ideal situation, the funds saved from such wastage can go towards development of clean energy technologies, higher wages, and dividends for shareholders or charity (Caney and Hepburn 2011:7-8). However, in the real scenario, the businesses were just concerned with looking at the lowest investment for maximum number of credits. There are no studies to prove that saved funds have been channelized thus. In CDM, the investments just headed for the large projects like hydro projects with suspect environmental benefits. Thus, there is a general agreement in the belief that these 'low hanging fruits' have not resulted in the expected move towards low carbon pathway (Liverman 2010, Lohmann 2010, Simon et al. 2015)

Thirdly, Caney and Hepburn (2011: 8) argue that ET mechanisms help maintain liberty of firms by providing them with greater space to manoeuvre and choice in search for cost-effective ways.

Caney and Hepburn do not think that the ethical considerations sustain in the face of this logic and moral reasons. Responding to Caney and Hepburn's arguments, Aldred (2012) re-organises the ethical arguments into three concerns as: 1) commodification; 2) pricing that which should not be priced; 3) civic responsibility and makes a stronger case for ethics of carbon trading.

Discussing the objections centring commodification and nature or rights, Aldred (2012) contends Caney and Hepburn's view that while private ownership of atmosphere is objectionable, ET confers the 'use right for a fixed period of time and not 'property right' over the emissions (Caney and Hepburn 2011:13) Aldred points that even weaker rights under the normal conventions can constitute ownership. Also, fixed-term or lease is a type of legal property right itself. The very basis for carbon trading



is premised on clearly defined property rights and most advocates of carbon market argue for stronger rights of property for trading permits. At the heart of the debate lies the fundamental objection that these permits confer on parties tradable rights to pollute the atmosphere. Alfred points to another assumption in Caney and Hepburn's work that emissions within cap and trade schemes will not damage the atmosphere (2012:342) and argues that emissions damage the environment notwithstanding whether or not they are within the cap. These also impose a welfare loss on the less emitting and future generations by reducing their opportunity to emit. On non-humans also a certain loss is imposed as climate change will impact the ability of other species to survive. Thus, arguments against commodification carbon point to the delaying tactic inherent in these as it will lead to inevitable accumulation of carbon in the atmosphere and the resultant damage.

Secondly, Aldred deals with the question of *pricing that which should not be priced*. This ethical argument contains within itself issues of justice and fairness. Thus, it considers the distributional impact of carbon trading as it depends on the ability and willingness to pay by polluter. Carbon markets extend the inequity in the access of goods to carbon. The ability to use carbon i.e. to emit carbon is a "pre-requisite for the fulfilment of basic needs and economic development" concurrent with the economic system and available technology (Aldred 2012: 345). Also, comparing carbon trading to regressive carbon tax, he reveals that poor end up paying higher prices for goods that require carbon emissions. He also counters Caney and Hepburn's second moral claim, mentioned earlier, and argues that mere recycling of revenues cannot address structural inequality. Such revenue transfers at global scale i.e. from North to South does not offer a hopeful scenario given the dismal experience with aid. Dealing with the second possible interpretation of price – is the question of value. Environmental losses are not always commensurable with monetary gains as the ramifications of these are felt over time by different generations of all species. Plus, he points out that payments made in ET mechanisms are not made as compensation to sufferers of environmental damage. Instead these are advanced to a less emitting firm with a cap or worse still by a firm in developing

countries that is only receiving the payment for offsetting and these are not permits *per se* to emit (Aldred 2012:346).

Thirdly, Aldred unpacks the ethical argument for civic responsibility and addresses Caney and Hepburn's arguments of alienating responsibility of own emission reduction and its impact on the vulnerable. This strand is primarily based on Michael Sandel's Civic Responsibility Argument (CRA) and emphatically argues that those who emit should reduce their own emissions rather than shifting the responsibility onto someone else by paying them for it (Sandel 2005:95 as quoted in Aldred 2012:350). Caney and Hepburn do not think the argument holds as they argue that motivations of actors within carbon markets are to lower emissions and nothing else. However, several case studies have demonstrated that neither the buyer nor the seller has any interest in actual delivery of the service i.e. emission reduction and are more concerned with financial transactions bit. Carbon markets as such are poor instruments for effecting behavioural change in the polluters as they can simply buy themselves out of responsibility to reduce their emissions. The cost and risks of these are passed on to the vulnerable people by the delay of action incumbent in the mechanisms and force them to make changes in their behaviours towards use of resources (Aldred 2012: 351-357).

Thus, ethical considerations cannot be so easily brushed aside by the supposed promises of emission reductions especially in the face of ever-increasing life-style emissions of the rich countries and development emissions of the southern countries. Commodification of carbon, thus, ethically leads to alienation of the responsibility by the rich countries historically responsible for accumulation of carbon in the atmosphere. This alienation and passing off the responsibility to the poor is not a sustainable ethical outcome.. The valuation of all that will be lost due to climate change cannot be sufficiently monetarily expressed. Therefore, any monetary compensation for the damage caused can not be adequate, just and equitable.

Conclusion

For future reference, it would work in the benefit of environment and people to also recall the history of



debate on ensuring environmental integrity in carbon trading. Even then it was recognised by the supporters of carbon trading mechanisms that a 'rigorous reporting standard' was essential for ensuring efficacy of the three mechanisms. However, it had seen hesitations on part of both the North and South. Developing countries saw it as a step towards shifting the responsibility of significant emission reduction on to the developing countries under the guise of cost-effective reductions. While for developed countries, it meant increase in transaction costs which could dilute the very effectiveness of cost-reduction, thereby making it less attractive option. Several concessions were made later during the negotiations of Marrakesh Accords'.

The deal-brokering on CDM was based on the compromise in which North could involve non-Annex I countries, including rapidly developing economies of India, China, Brazil and South Africa, in its mitigation endeavours and accrued credits in carbon. South saw it as an added source of finance with the promise of transfer of green technologies in the process due to promised sustainable development benefits (Earth Negotiations Bulletin 12, No. 76, 1997:15). However, the debate between environmental integrity and cost-effectiveness was also decided in the favour of the latter (Paterson and Newell 2010). It must also be noted that in most cases sustainable development benefits involving elements of technology transfer and supplemental finance within CDM remain suspect.

Given the larger consensus on the neo-liberal frame wherein the primacy of market in addressing negative externality and promoting sustainable development is agreed upon as a pre-condition. This is evident in the discussions and contestations on the issue that have moved from debates on ethical issues with commoditization of environmental bads to the fine-tuning of apparatus and rule making for ensuring environmental integrity within the mechanisms. This is shaped due to the discourse of urgency to take actions in which several actors have by delaying negotiations have succeeded in getting others to tacitly agree on the market-based mechanisms for the sake of action by any means. This agreement is also premised on the promise that the less powerful and poorer countries will have opportunities to gain in

finance by being the sellers. The risk emanating from failure is, however, going to be greater as the inability to reduce emissions would lead to a higher temperature rise.

The remnants of ethical considerations were present in the 'environmental integrity' clause that but failed to produce the desired results. Observers have noted the ability of large developing economies like China and India in cornering the "benefits" of the 'supplemental' flow of finance. Therefore, there are suggestions for making future mechanisms more adaptable to the capacities of the smaller developing countries and economies. This would also provide the polluters with a wider array of lower-investment opportunities to choose from.

Inter-governmental Panel on Climate Change (IPCC)'s 2014 Assessment Report-5, states that climate change will have devastating effects for developing countries like India where average annual temperature could rise by more than 2°C over land in most of South Asia by the mid-21st century and exceed 3°C under a high emissions scenario. It would lead to greater intensity of bigger cyclones, submergence of coastal settlements, flooding and erosion. As a cause of this agricultural productivity will decline leading to exacerbation of existing problems of malnutrition, hunger and rural poverty. Thus, failure to contain climate change through carbon trading should raise ethical considerations of achieving real emission reduction in areas with high emissions. These considerations should remain cognisant of the reality that awaits the vulnerable and marginalised across the world including the poor nations. Thus, ethics of equity and justice should not be sacrificed at the altar of real polity and a professed need for expediency in arriving at solutions.

As nations vulnerable to climate change with limited resources for adaptation to ensure the life-chances and livelihood of its own people, India and other developing countries should also make sure that the stress on equity not remains limited to participation in the carbon market alone. But also be broadly applicable to ensure that all mechanisms lead to equitable distribution of both risks and benefits of climate change.



References

- Aldred, J. (2012). The Ethics of Emissions Trading, in *New Political Economy*, 17:3, 339-360.
- Anderson, T.L. and Leal, D.R. (2001). *Free Market Environmentalism: Revised Edition*. New York: Palgrave Macmillan.
- Caney, S. and Hepburn, C. (2011). Carbon Trading: Unethical, Unjust, and Ineffective, in *Centre for Climate Change Economics and Policy Working Paper no. 59* and *Graham Research Institute on Climate Change and Environment Working Paper no. 49*.
- Coase, R (1960). The problem of Social Cost, *J. Law Economy* 3, 1-44.
- Hardin, G. (1968). The Tragedy of the Commons, *Science*, 162 (3859), Pp: 1243-1248.
- Intercontinental Exchange (2016). Chicago Climate Exchange: Offsets Registry [Online:Web] <https://www.theice.com/ccx>. Accessed on June 6, 2016.
- Lohmann, L. (2010). Uncertainty Markets and Carbon Markets, in *New Political Economy*, 15(2):225-54.
- Newell, P. (2008). The Marketization of Global Environmental Governance: Manifestations and Implications, in Jacob Park, Ken Conca and Matthias Finger (eds.) *The Crisis of Global Environmental Governance: Towards a new Political Economy of Sustainability*, Oxon: Routledge.
- Paterson, M. and Newell, P. (2010). *Climate Colonialism: Global Warming and the Transformation of Global Economy*. Cambridge: Cambridge University Press.
- Rosenau, J.N (1997). Global Environmental Governance: Delicate Balances, Subtle Nuances, and Multiple Challenges, in Mats Rölen, Helen Sjöberg, Uno Svedin (eds.) *International Governance on Environmental Issues*, Dordrecht: Kluwer Academic Publishing.
- Sandor, Richard L. et al (2002). An overview of a Free-Market Approach to Climate Change and Conservation, in *Carbon, Biodiversity, Conservation and Income: An Analysis of a Free-Market Approach to Land-Use Change and Forestry in Developing and Developed Countries*, (*Philosophical Transactions: Mathematical, Physical and Engineering Sciences*), 360 (1797), 1607-1620.
- Simon, N. et al (2015). Technology Transfer and Cost Structure of Clean Development Mechanism Projects: An Empirical Study of Indian Cases. [Online:Web] <http://ssrn.com/abstract=2703661>. Accessed on May 6, 2016.
- Stern, N. (2007). *The Economics of Climate Change: The Stern Review*. Cambridge: Cambridge University Press.

Endnotes

¹ 2°Celsius is scientifically believed to be the guard-rail as any increase beyond this would lead to runaway climate change and leading to a more challenging climate for future course correction.

² Carbon is used to denote the Carbon Dioxide as well as different greenhouse gases (GHG) as is done in common scientific parlance.

³ The 1992 UN Framework Convention on Climate Change (UNFCCC) focused on the stabilization of Green House Gases (GHG's) concentrations as the threshold of the regulatory tool. Kyoto Protocol of 1997, which emerged out of the Conference of Parties 3 (COP-3), aims at rolling back 5.2% of GHG emissions from industrialised countries to 1990 levels. This emission reductions by Annex I countries is based on the principle 'to protect the climate system...on the basis of equity and in accordance with their *common but differentiated responsibilities and respective capabilities*.' The actions required to meet the commitments in KP were believed to affect all major sectors of the economy of the developed industrialised world, and was presumed to be very challenging especially due to the lack of political will. To provide countries with certain degree of 'flexibility' in meeting their emission reduction targets, the protocol provided the countries with three market-based mechanisms of Joint Implementation (JI) in Art 6, Clean Development Mechanism (CDM) in Art 12, and Emissions Trading (ET) in Art 17. Annex I countries used these mechanisms to meet a part of their carbon-emissions commitments by reducing or removing atmospheric CO₂ in accordance with Articles 3(3) and 3(4).

⁴ Certified Emissions Reductions (CER) under Emissions Trading (ET) could be traded nationally while under Joint Implementation (JI) CER's could be traded across different Annex-I parties. CDM was the only mechanism under which the CER's generated in a non-Annex-I country could be used by the Annex-I parties to meet their emission reduction commitments.

⁵ The detailed rules for the implementation of Kyoto were adopted at COP 7 in Marrakesh in 2001, and are called the Marrakesh Accords.



Regionalism: Ethical Dilemma of Cosmopolitan Idealism and National Interest

Ms. Aditi Paul

Immanuel Kant suggested that those trying to examine the impact of moral principles must distinguish between morality and self-interested motivations because both lead to the same result (Kant 1993). So if considering the solutions to global peace, security and poverty, from moral cosmopolitan sense, one can advocate ethical solutions for co-existence, that is, on humanitarian grounds we must fulfil duties, extend rights and freedom, and share responsibility. On the other hand, from the standpoint of realist practicality, the solutions to global problems lay in cost-effective methods that safeguard one's own property first. Over here, one is confronted with a moral obligation that does not allow sacrificing oneself. Now, the two arguments do not complement each other but do make a determined contribution to resolve world problems and best utilize the global commons.

From the point of view of moral cosmopolitanism, such as, general will, world government, equitable distribution of material gains and ideas, and reciprocity in relations, regionalism does lay the foundation for constructing a community for interaction between those belonging to different language, ethnicity and nationality. Regionalism is a process of economic, social and political cooperation that facilitates economic interdependence, political friendship and regional identity. It involves policy making and concrete actions from the participating states to fulfil regional interests like order, peace and security. Anthony Payne and Andrew Gamble (1996) define regionalism as, "a state-led or states-led project designed to reorganize a particular regional space along defined economic and political lines". Traditionally, regionalism was region specific, that is, regionalism referred to "processes and structures of region-building in terms of closer economic, political, security and socio-cultural linkages between states and societies that are geographically proximate" (Borzel et al. 2012). However, the contemporary regional schemes are not centralised units and

members belong to different regions. For instance, BRICS is a regional economic grouping of Brazil, Russia, India, China and South Africa. Regional integration is a part of the regionalism process. Hans Van Gingel explains regional integration as "the process by which states within a particular region increase their level of interaction with regard to economic, security, political and also social and cultural issues" (Gingel and Langenhove 2003).

In many sense, regionalism is an implication of cosmopolitan principles which envisions global good. However, to project it in this way is to increase the likelihood among states to escape the inconveniences they may encounter when making adjustments in their domestic laws, norms and practices. This explains why some projects of regionalism are deeper and expansive with a distinct feature of supranational institutions, and some are shallow only limited to inter-governmental approach. South Asian Association of Regional Cooperation (SAARC) is a case of shallow regionalism and has suffered since its inception from noncommittal nature of the member states.

In several ways, moral principles and reasoning are abstract and do not fit well with the complexities of the real global situations. Criticisms on cosmopolitanism challenge the ideas for being too moralistic, idealistic and utopian. And, that the cosmopolitan principles fail to explain ethics and morality when questions are raised by communitarians and pluralists. That is, how can the principle of universal solidarity sustain in diversity born out of race, caste, culture, religion, ethnicity, etc. For instance, Michael Walzer postulates that "the idea of distributive justice presupposes a bounded world, a community, within which distribution take place, a group of people committed to dividing, exchanging, and sharing, first of all among themselves" (Walzer 1983: 1). Conversely, David Miller opines that it is not easy to denote "how demanding" it is to secure global justice



because world order is "radically unjust" (2007: 384-394).

The article is on how and under what conditions, the national interest helps the realization of regional peace and security. It argues that when the economic and strategic ambitions are tactfully harnessed, the cosmopolitan goal of regionalism is also realized. However, the paper does not emphasize that only national interest and ambitions can sustain moral cosmopolitanism. On the contrary, it asserts that it is the moral and ethical commitment towards cosmopolitan principles like world peace, stability and security that the sovereign states agree to undertake policy reforms and actions for instigating bilateral and multilateral solidarity. It is necessary to highlight that moral cosmopolitanism is not just important, but without it the motivation and ambition for regionalism also does not rise.

Economic National Interest

Economic growth is one the foremost national interest of a sovereign state. For its realisation, states encourage commercial relations, reduce tariff barriers, modify protectionist policies, reform domestic economic instruments, and build infrastructure for improved and efficient transit and communication. The trade theorists claim the benefits of *laissez-faire* and economic interdependence. Classical economists like Adam Smith opine that market is a self-regulating mechanism and is socially beneficial. Market functions through the interplay of competitiveness of the manufactures and the quest for profit maximization. It not only attracts proficiency in trade and commerce, but promotes investment as well. David Ricardo held that free trade "binds together, by one common tie of interest and intercourse, the universal society of nations throughout the civilised world" (Ricardo 1911: 114). And, his theory of "Comparative Advantage" argued that free trade generates conditions for win-win results for all the trading partners. Moreover, it also allows absolute advantage because each participant is indulged in product specialization.

Friedrich Hayek argued that the fixation on economic growth led the prospering democratic economies to devise solutions for safeguarding individual rights and privileges. In a way, the United Nations and international financial institutions are ruling the terms of trade and diluting authority from

the national governments. Similarly, Immanuel Wallerstein (2011) laid his interest in exploring the divisions in the international economic system, and argued that the "core" economic states differentiated themselves from the "periphery" and "semi-periphery" zones in terms of specialization of goods and services, and seldom disturbed the structure of unequal commercial exchange and profits.

Regionalism is most popular and convenient when it is a trade agreement as opposed to political governance and security cooperation. Economic cooperation entails agreements for preferential terms of trade, which may or may not involve harmonization and standardization of national economic policies. The member states of SAARC have consented to preferential trade (SAARC Preferential Trading Arrangement (SAPTA) in 1995) and free trade (South Asian Free Trade Area (SAFTA) in 2006), but there is no mandatory terms of trade related to harmonization and standardization of rules. Despite introducing tariff reductions, the non-binding nature of SAPTA and absence of time period for individual economies to make definite changes in order to adapt to the terms of preferential trade, led SAPTA to encourage mild negotiations. SAFTA, on the other hand, faces no less different situation. Moreover, it is affected by the unresolved bilateral political issues between two of its most important members – India and Pakistan.

Economic regionalism constitutes different stages of obstacle removal that enable deep integration, such as, preferential trade, free trade, customs, union, common market, monetary union, etc. And, since it involves choices and cautious treatment, it is doubtful whether the case of regionalism is for genuine regional integration, equality of development and benefits or is it a veil for power pursuit in the post-Cold War era where economic strength surpasses territorial security. Genuine trust plus reciprocity in trade relations to maintain economic globalization and equality of benefits is a moral responsibility. But, trade and commerce is in one's national interest as well.

Economic growth is a rational choice besides being an imperative for sovereign states in the era of robust globalization, technological advancement and economic interdependence. In the context of relative



gains, states undertake measures that favour protectionism even if it runs contrary to the cosmopolitan ideal of regionalism. The *beggar thy neighbour* policy is a case in point and explains that trading states encourage exports on the one hand, yet do not deter from lifting protectionist barriers on import goods from the partner states. Martin Wolf argued that it is a "grotesquerie" of the rich states within the World Trade Organization to enforce conditions like lower trade tariffs on developing states and maintain heavy subsidies themselves (Wolf 2005: 215). A report by the World Trade Organization (2012) examined this nature of state and emphasized that despite warnings against the protectionist measures put in place to solve the economic issues, trading states preferred tariff barriers in situations of political pressures and economic crisis. In other words, cosmopolitan value of political integration is weak and cannot overcome the national interest and ambition.

Arguably, there is need for common law or an authoritative structure that acts as a central power and dictates the rules of integration between states. So, political integration does seem to fit in and has to precede any form of economic relation. Take the case of free trade and freedom of movement and reside. Free trade, reduced tariff rates, people to people interaction and communication helps the realization of economic regionalism and builds unhindered channels of trust and reciprocity. But political willingness and action, from each state involved in regionalism, precedes the variety of freedoms granted to citizens. A moral obligation to extend rights and freedom helps sustain not only economic but political friendship. Immanuel Kant called for a political federation in his essay *Perpetual Peace* for solving the problem of war with universally consented moral principles, later it was regarded as Kantian Cosmopolitanism. It is no secret that regional institutions for multilateral engagement in several functional areas are made possible only by deliberate political choices.

This also fulfils the responsibility for an effective regional order, peace and security, and liberal cosmopolitanism is turned into reality. It cannot be denied that the example of European Union (EU) instils fear against economic integration. The ongoing financial turbulence and threat of disintegration has lessened the desirability of aping the institutional and

normative form of regionalism practiced in Europe. Yet, EU is a quintessential example of regionalism and one can draw lessons on economic, political and social integration from it. It has transcended the state system and has built a central order above the states with structures like European Parliament, Court of Justice and European Central Bank. And, while the right to exit is withheld by the member states, considering the cost of withdrawal of membership from a regional organization and the risk of isolation, a unilateral decision taken to promote self-interest often discourages the states to break the union. It becomes pertinent for states to abide by the cosmopolitan principle of solidarity and be a part of the jointly consented regional grouping. It is true to the dilemma that different factions in Britain are facing in its quest to decipher what is right for their nation – unity or exit from EU. However, it understands the advantages of being a member of EU and the safeguard it provides for its massive market, people against threats to security, and opportunities for employment and investments.

Another way of thinking about the link between political and economic regionalism is to see the relationship from the theoretical lens of liberal functionalism. The functional theory of integration generates spillover of benefits that was not deliberately intended in the first place. The functional integration describes the EU in this manner and has also been the basis for regionalism in South Asia. Nevertheless, it does seem that prudent political willingness and national ethics justifies the cosmopolitan goal of order, peace and security. If collective economic growth is the national ambition then the cosmopolitan goal also finds fulfilment. The individual ambitions when develops a collective character then the cosmopolitan goal of regionalism is also secured.

Strategic National Interest

Sovereign states are in constant search for political and diplomatic privilege. While the location determines most of the priorities in national interest, the rest depends upon the strategic calculations made for greater power. For regional integration, members of a regional organization have to choose levels of cooperation and how much they want to retain or give away their sovereignty because greater the level of cooperation, deeper the integration, and lesser the



control over national interest. A dilemma occurs between responsibility towards regional laws and ethical commitment towards one's own national values and norms. For example, in order to induce moral cosmopolitanism and empower the regional institutions and regulations, member states have to construct a foundation of liberal cosmopolitanism like democracy, free trade and rule of law. But it means readjusting national values and moral obligations towards the history of one's existence. Liberal democratic governance may or may not be part of a state's history and its domestic policies, and related preferences may diverge from other states. It is similar to the use of coercion for political objectives and influencing strategic decisions of our opponents. Regardless, of coercion being a creative and cost effective method of conflict resolution, it still is a diplomatic tactic of deception and will invite resistance or even discord. Even methods of conflict management like mediation and negotiation aims to transform behaviour and reach a settlement that the opponent may be uncomfortable with. T. Erskine opines that "claims of impartiality in moral reasoning behave as no more than a façade for the cultural and political imperialism of those with power (Erskine 2002: 477). And, Rawls considered universal morality is "particularly liberal or special to our Western tradition" and is rejected by non-liberal sections (Rawls 1993: 69).

The dilemma does not end here. One is then to choose between justice for self and global justice. The member states of a regional organization have to cherry-pick from the virtues of economic regionalism and political friendship on the one hand, and national motivations that allows the well-being of one's own nation and political system, however democratic or undemocratic it may be. Scholars have regarded that moral cosmopolitanism is society and culture specific, and have no meaning for those outside it (Dower 1998; Rawls 1993). Nation and nationality obliges people to put countrymen before those outside it. Cosmopolitan ideals are "necessarily situated, embedded, and embodied" (Erskine 2002: 572). Michael Blake points out that "the national community is the source of the language and values employed in the practice of moral judgement' partiality to the interests of one's fellow national is therefore a consequence of the nature of morality' (Blake 2008). A. MacIntyre argues that "patriotism requires me to exhibit peculiar

devotion to my nation and you to yours" (MacIntyre 1996: 5). Similarly, Yuli Tamir points out that since an individual derives identity from a nation, it becomes its responsibility to care for fellow nationals and hold moral obligation for the betterment of the concerned nation (Tamir 1993).

The stronghold of military in Pakistan is due to its ability to command over civilians that Indian army lacks. So, between the options to prefer democracy and military control coupled with strong Islamic guidance, the balance tilts towards military dominance for Pakistan. Then, to tell Pakistan to alter its national preference and imbibe democratic values and liberty in thought and action for improving regional cooperation under SAARC is similar to impose conditions for regionalism and this is ethically divergent from the essence of democracy, which propagates freedom of action, speech and movement. Besides, for even the culturally homogenous communities, the moral obligation of equal rights and treatment is problematic. Pluralism permeates in areas like ability and rewards, resulting in differences in importance.

Some scholars presume that global justice is farcical because there is no global government to ensure justice. Thomas Nagel argues that justice is "a property of the relations among human beings requires government as an enabling condition" (Nagel 2010: 116). Regionalism can only be implemented when all the member states are committed to the stated virtues and norms, are part of a common endeavour and are willing to devote national resources for common use. It is precisely the problem in South Asia that the states are unwilling to make unilateral adjustments and commit to regional economic agreements for regulating and harmonizing trade and investment laws.

Yet, the question of advancing the cosmopolitan goal of regional peace and security remains steady and it does call for sacrificing national interests and ambitions. Martha Nussbaum argued that when it comes to helping those in need "we should give our first allegiance to no mere form of government, no temporal power, but to the moral community made up of the humanity of all human beings" (Nussbaum 1996: 2-20). Love for humanity is central to human cognition and is part of social develop-



ment (Nussbaum 2002; Braybrooke 2003). It takes us back to the roots of cosmopolitan theory when Diogenes disregarded origins of nationality and claimed "I am a citizen of the world" and Stoics and Cicero proclaimed commonality in reason and ability to communicate. The idea was to consider oneself part of a unified society and "measure the boundaries of our nation by the sun" (Seneca et al. 1987: 431).

In such a situation, the cosmopolitan virtue of global good and justice for all becomes an essential component of national interest. In the post-1990s, the threats to security broadened and the solutions to combat them have also changed. There lurks a global threat of terrorism and environmental degradation. They are impossible to limit within the national borders and threaten the survival of people. The human interdependency in economic, political and cultural spheres has increased and behavioural consequences impact each other. It reflects Kantian notion of cosmopolitan co-existence, that is, "a violation of rights in one part of the world is felt *everywhere*" (Kant 1970: 107).

In order to secure the strategic interest, states have to act in a concerted manner and devise solutions that calls for "greatest good of the greatest number". Kant believed that states must dismiss immaterial ends, gains and self-interest because these reject morality (Kant 1796). Instead, he advised to "seek first the reign of pure practical reason and its justice and your end will necessarily follow" (Kant 1796: 60). Classical Utilitarians like Jeremy Bentham, John Stuart Mill and others argued maximization of good and happiness. Bentham, in his formulation of an ideal government, favoured good utility of a law which guaranteed pleasure (Bentham 1988). Similarly, Thomas Pogge asserts that if a centralized authority is implemented in place of "voluntary cooperation" there are chances of gaining "support of most peoples and government, if it increases the security of all on fair terms that are effectively adjudicated and enforced" (Pogge 1992: 62). In other words, good for the global commons gets legitimately associated with efforts to ensure self-survival. So, clearly national ambition moved in accordance with the cosmopolitan ideal of harmony and justice. And, both kinds of the obligations, national and global, are balanced.

Therefore, it is crucial to make such policies that cater to national interest and fulfil cosmopolitan moral obligations. It would enable not just the process of regionalism to move forward but will not threaten the ambitions of the sovereign states. Working under a regional cooperative framework facilitates harmonious relations, feeling of trust and partnership. For regional development, sincere efforts are required in various areas of human security and it does amount to humanitarian welfare for both developed and developing states. Collaborating on issues of regional concern can become a catalyst for turning national interest into mutual interest.

Cosmopolitan principle of solidarity presupposes that all the participating states in regionalism are committed to the same goal and are least likely to refrain from the agreed norms and values. John Searle argued that institutions, whether it is family or market, depends on collective interest and a "system of constitutive rules" (Searle 2010: 10). According to Searle, constitutive rules facilitate conditions for regulating behaviour in a way that the institutional structure functions only under a set form of behaviour or rules. Similarly, Kant's cosmopolitanism also required intentional commitment or "by the concert of all" at the political level (Kant 1796: 48). For Kant, general will is not "dispersed individual, but the organs by which they cooperate as a body" and it is based on moral principles like reason and justice (Kant 2007).

It also solves the problem of collective action and cooperation in the absence of central authority which the realist theorists believe as impossibility. However, the issue of ensuring reciprocity and whether the other party is conducting itself in lieu of the agreed norms rises. Hypothetically, when states reciprocate cooperation and abide by the trust generated by regional institutions, the members do not deviate from the partnership. However, as Eric Uslaner points out, the issue of trust is strategic in nature and situational in character. If actors honour agreements and expect reciprocity over a short period of time then trust increases. But in case where relationship yields benefits over a long period of time, reciprocity fails to be the answer for ensuring trust (Rathbun 2012; Uslaner 2002).



The recent case of BBIN (acronym for Bangladesh, Bhutan, India and Nepal motor vehicle agreement), signed in 2015 for seamless cargo and passenger movement in South Asia, reflects deviation from the stated goals in the SAARC Charter drafted in 1985. Article 1 of the Charter stated that the organization is for promoting "collective self-reliance", "contribute to mutual trust, understanding and appreciation of one another's problems", and "promote active collaboration and mutual assistance". But, Pakistan's dismissal of the proposal led the other member states of SAARC to move ahead and break the commitment to regional solidarity. From the Murphy's point of view, this action was desirable, for he considered the "principle of beneficence should not increase its demands on agents as expected compliance with the principle by other agendas decreases" (Murphy 1993).

One of the solutions lies in enforcement of binding rules. Binding rules promotes improved assurances that the member states will not disregard the institution and play their role in maintaining regional cohesion. It is in tune with the Kantian ideology on the need for an institutionalised or supranational structure of cosmopolitan law that governs the passions of human beings in order to foster peace and security from political conflicts between sovereign states. Charles Beitz discussed supranationalism and called it *Institutional Cosmopolitanism*. For Beitz, cosmopolitanism "should be reshaped so that states and other political units are brought under the authority of supranational agencies of some kind" (Beitz 1994: 124). Rules aid cosmopolitan sense of unity and ensures constant political willingness that otherwise may fluctuate under changing strategic climate. Had SAARC emphasised on the notion of binding rules in its charter and other regional agreements and initiatives, the delay in willingness and action towards cooperative endeavours could have lessened. This is the reason why SAARC secretariat is paralysed because the member states do not take appropriate measures to enforce regional decisions and amend their national policies and preferences. Unquestionably, one can argue that the reasons for choosing to cooperate in human security areas as opposed to high-politics and the deliberate choosing of non-binding rules in South Asia is the unsettled nature of bilateral relations,

dearth of allegiance to liberal cosmopolitanism, identity and religious based issues and economic underdevelopment.

Conclusion

For regionalism to sustain in any region and amongst any group of states, principles of moral cosmopolitanism have to be such that speaks to them and motivates to attach greatest importance to regional integration. Contemporary laws of interdependence and co-existence must cater to elements of multilateral cooperation and protect principles of universal solidarity. Catherine Lu argued that the contemporary global co-existence essentializes ethics to be based on "the acknowledgement of some notion of common humanity that translates ethically into an idea of shared or common moral duties toward others by virtue of this humanity" (Lu 2000: 245). Moral cosmopolitanism in the contemporary times must satisfy humanitarianism yet is "not guilty of being imperialistic, idealistically utopian" (Brown 2006: 11). Else, even after acknowledging the importance of regionalism for enhanced economic and political relations and its ability to create a sense of community and common identity, the national interest of the member states will overshadow the possible benefits accrued from collective action.

The paper suggests that along with cosmopolitan ideals, prudent national ambitions run parallel. And rather than competing both are complementary to each other and reinforce the goal of regionalism. The call for oneness, friendship and union in the charter of regional organizations does not omit the interests of the members. Shared identity helps states to develop friendship across national borders and adjust to the values and norms of other communities. It is also crucial because the inherent biases against the *other* reduce the ethical considerations when chalking out the preferential terms of relations. One should follow the principle of "reciprocity" which according to Martha Nussbaum is a moral obligation "to try to understand their ways of thinking" (Nussbaum 1997: 36). It is so because "we cannot live for ourselves alone. Our lives are connected by a thousand invisible threads, and along these sympathetic fibers our actions run as causes and return to us as results" (Herskovits 1972). Thus, economic and strategic interests may work in tandem with moral



cosmopolitanism because priority attached to national interest and ambition is not absolute. In fact, it would be difficult to suggest the existence of economic and strategic ambition without the cosmopolitan goal of regional order, peace and security.

References

- Beitz, C. (1994), "Cosmopolitan Liberalism and the State System", in Chris Brown, *Political Restructuring in Europe: Ethical Perspectives*, London: Routledge.
- Bentham, J. (1988), *A Fragment on Government 1976*, Cambridge: Cambridge University Press.
- Blake, M. (2008), "International Justice", *The Stanford Encyclopedia of Philosophy*, (Online: web) URL: <http://plato.stanford.edu/archives/win2008/entries/international-justice/>.
- Borzel, T.A., L. Goltermann, M. Lohaus and K. Striebinger (2012), *Roads to Regionalism: Genesis, Design, and Effects of Regional Organization*, Surrey: Ashgate.
- Braybrooke, D. (2003), *Natural Law Modernized*, Toronto: University of Toronto Press.
- Brown, G.W. (2006), *Kantian Constitutional Jurisprudence and a Minimal Ethical Foundation for a Cosmopolitan Order*, PhD Thesis, London: London School of Economics and Political Science.
- Dower, N. (1998), *World Ethics: The New Agenda*, Edinburgh: Edinburgh University Press.
- Erskine, T. (2002), "'Citizen of Nowhere' Or 'The Point Where Circles Intersect?' Imperialist and Embedded Cosmopolitanisms", *Review of International Studies*, 28(3): 457-478.
- Gamble, A. and A. Payne (1996), *Regionalism and World Order*, Basingstoke: Macmillan.
- Gingel, H. V. and L.V. Langenhove (2003), *Introduction and Context*, in Hans Van Gingel, Julius Court and Luk Van Langenhove (eds.), *Integrating Africa: Perspective on Regional Integration and Development*, Paris: UNU Press.
- Herskovits, M. (1972), *Cultural Relativism: Perspectives in Cultural Pluralism*, New York: Random House.
- Kant, I. (1796), *Project for a Perpetual Peace: A Philosophical Sketch*, Translated from German, Stephen Couchman for Verner and Hood, Birch Lane, Cornhill, online book by Making of the Modern World.
- Kant, I. (1970), "Perpetual Peace", in Hans Reiss, *Kant's Political Writings*, Cambridge: Cambridge University Press.
- Kant, I. (2007), *Critique of Judgement*, J.C. Meredith (trans.), Oxford: Oxford University Press.
- Kant, Immanuel (1993), *Grounding for the Metaphysics of Morals*, Indianapolis: Hackett Publishing.
- Lu, C. (2000), "The One and Many Faces of Cosmopolitanism", *Journal of Political Philosophy*, 8(2): 244-267.
- MacIntyre, A. (1996), *After Virtue*, Notre Dame: Notre Dame University Press. 2nded.
- Miller, D. (2008), "National Responsibility and Global Justice", *Critical Review of International Social and Political Philosophy*, 11(4): 383: 399.
- Murphy, L. (1993), "The Demands of Beneficence", *Philosophy and Public Affairs*, 2(4): 267-292.
- Nussbaum, M. (1996), "Patriotism and Cosmopolitanism" in J. Cohen (ed.), *For Love of Country: Debating the limits of Patriotism*, Boston: Beacon Press.
- Nussbaum, M. (1997), "Kant and Cosmopolitanism", in J. Bohman, M. Lutz-Bachman, (eds.), *Perpetual Peace: Essays on Kant's Cosmopolitan Ideal*, Cambridge: MIT Press.
- Pogge, T. W. (1992), "Cosmopolitanism and Sovereignty", *The University of Chicago Press*, 103(1): 48-75.
- Rathbun, B.C. (2012), *Trust in International Cooperation: International Security Institutions, Domestic Politics and American Multilateralism*, Cambridge: Cambridge University Press.
- Rawls, J. (1993), "The Law of People's", in S. Shute and S. Hurley (eds.), *On Human Rights: The Oxford Amnesty Lectures 1993*, New York: Basic Books.
- Ricardo, D. (1911), *The Principles of Political Economy and Taxation*, London: John Murray.
- Searle, J. (2010), *Making the Social World*, Oxford: Oxford University Press.
- Seneca, De Otio, A. Long and D. Sedley (eds.), (1987), Cambridge: Cambridge University Press.
- Tamir, Y. (1993), *Liberal Nationalism*, Princeton, N.J.: Princeton University Press.
- Uslaner, E. M. (2002), *The Moral Foundations of Trust*, Cambridge: Cambridge University Press.
- Wallerstein, I. (2011), *The Modern World-System IV: Centrist Liberalism Triumphant, 1789-1914*, Berkeley, CA: University of California Press.
- Walzer, M. (1981), "The Distribution of Membership" in Peter Brown and Henry Shue, *Boundaries*, Totowa, N.J.: Rowman & Littlefield.
- Wolf, M. (2005), *Why Globalization Works*, New Haven and London: Yale University Press.



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Digital Editions available on:



www.worldfocus.in

ISSN 2230-8458

U.S. Library of Congress No. 80910345

442

October 2016



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WORLD FOCUS

INDOCENTRIC FOREIGN AFFAIRS MONTHLY JOURNAL
Volume XXXVII Number 10 October 2016

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WORLD FOCUS takes up every month one international issue and gives an analysis of its various aspects by persons well known for their specialisation in the subject. The issues covered are topical or near topical, but of an abiding interest. The analysis is simple enough to interest even an initiate to world affairs, but without sacrificing depth. The aim is to present an Indocentric view on a particular issue currently facing the world.

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Edited, Owned, Published and Printed by
G Kishore Babu from B-49 (Ground Floor), Joshi Colony, I.P.
Extension, Delhi-110092 at Meenakshi Press, 4857/24, First
Floor, Ansari Road, Daryaganj, New Delhi - 110002

Total number of Pages 136, including Covers

Copy Right : World Focus

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EDITORIAL

Climate change means different things to different people. The Indian government is looking at reviewing the wildlife and forest laws. This is to keep nature safe and industry growing to create more jobs to feed people. Man is as precious as Nature and Wildlife are. The government is looking at making long overdue structural changes in the two laws that govern tribal rights, Indian Forests and wildlife. The government will also review and look at earlier laws like the Forest Rights Act of 2006 and will also look into the Indian Forests Act of 1927, and the Forest Conservation Act of 1980. Sensitive issues of relocation of people living within forest for centuries has to be addressed with a human touch. As of now green zones cover about 6 % of the total land area of the country. Our local laws will be made as per laws in other countries protecting wildlife promoting industrial growth. The National Board of Wildlife headed by the Prime Minister will have a bigger say in the policy making issues, it may look at all issues dispassionately taking care of all interests. Once these laws are in proper place, Indian Forests will be more in tune with International laws governing Forest, Wildlife and the livelihood of Tribals living in the forests.

Jobs are first concerns of any growing economy. Developments have left China with Chimney cities full of industrial smog with millions suffering from smog related lung diseases. Mask wearing is the order of the day in most Chinese cities. The west has paid the cost of industrialisation about 75 years ago. Now the west wants to reduce all polluting gases replacing ozone depleting gases with non/ less depleting ones. Conferences on climate change are the order of the day in the industrialised world. The Paris talks for the first time have given weightage to not so rich countries and getting rich countries of the world.

The conference in Washington D.C "Our Ocean" on September 15- 16 2016 has discussed the issues of Ocean pollution, much of which originates on Land. Be it nutrients from sewage and farming that are transported to the oceans by rivers that deplete oxygen to create dead zones. This makes fish to migrate to other areas. Plastic packaging material thrown into rivers on entering the sea breaks down into small pieces and is consumed by fish.

Also coming up in Kigali, Rwanda is a meeting for the amendment of the Montreal Protocol for which India is committed to do it by end 2016. It has issues of replacing existing refrigeration gases with less Ozone depleting ones. As many of these gases are proprietary gases covered by costly patents, which may soon be replaced by better gases. The Montreal Protocol does not cover cost of transition, nor licence fee of patented technologies. There are many issues to be discussed, India has sought 2030 as the peaking year, whereas the US wants 2020.

Few months ago, it seemed asif India was not ready to ratify the Paris Climate Change Agreement, as Mr Panagariya India's Sherpa (Representative) to the G 20 had said; "We are not quite ready yet in terms of domestic actions that are required to ratify or at least to commit to ratify within 2016" He also said" We have influenced the outcomes in every area. The negotiations lasted for 40 hours. The communique is about 7000 words". It looks like that India has linked the signing of the Signing of Paris Climate Change Agreement with it becoming a member of Nuclear Suppliers Group(NSG).The Paris Agreement is committed to limit global warming to well below 2 degrees C and be as close to 1.5 degrees C.

But now in a significant development the Cabinet chaired by PM Modi has cleared for ratification (on 2 October) of the Paris Agreement on Climate Change.

With two of the largest countries contributing to Global Emissions China 21.1 % and US 17.9% ratifying the Paris Climate Pact and showing keen interest in reducing pollution, the World Should be a cleaner place to live in! *We are thankful to Professor P.C. Joshi, Delhi University for preparing this special issue as the Guest Editor.*

New Delhi
October 2016

G. Kishore Babu
Editor



Climate Change: Sustainable Development & Energy Security

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Antiquity and Novelty of Climate Change

Prof. P. C. Joshi

Climate change discourse entails a very complex set of factors, policies, negotiations and diplomacy, at the same time it exemplifies a very peculiar practice of science as well. Multiple voices which are quite commonly known as the climate change negotiations have turned it into a very critical debate. The discourse is critical not because there is climate change, which after all is an eternal phenomenon responsible right from Jurassic upheavals to the pre-Holocene glaciations. It is because, this time around, there is clear cut and quite visible anthropogenic contribution to acceleration of adverse effects of climate change resulting in the warming of the earth having far reaching consequences. This anthropogenic contribution is further linked to the capitalistic and profit oriented world order under which the dictum of 'now or never' rules the lifestyle and existence of the modern society. Of myriad causes that are attributable to climate change, the primary cause is the burning of finite fossil fuel which has very important adverse linkages to the sustainable development and energy security. In 1896, Swedish scientist Svante Arrhenius made a prediction that fossil fuels burning (especially coal burning) will double atmospheric CO₂ over the next 3,000 years and it will consequently increase the global temperature to about 5°C. His predictions were correct but he was wrong in calculating the speed of CO₂ increase. In reality, the increase of CO₂ is about 18 times faster than predicted by Arrhenius (1896). Therefore, there is urgency and at the same time emergency which we are facing. The world body needs to sit together; the countries and municipalities need to mend ways and simultaneously the people as enlightened citizens need to make required changes in their lifestyle and consumption pattern so that effective and appropriate climate change mitigation actions can be taken. We should also be aware of the phenomenon of scare. We have reached a stage now when every thing adverse is being blamed on the climate change. A little bit more rain here and there is blamed on the climate change. There is overall

panicky and climate change has become a scapegoat to take blame for any adverse happening. Urgency albeit, climate change science has indeed moved way ahead and we precisely know now what needs to be done and how best we can mitigate the climate change adverse effects.

Energy and Culture

American cultural anthropologist Leslie White (1943) explained the evolution of culture in the light of the energy expenditure since the beginning of the mankind. In his thesis, the amount of energy per capita per unit of time harnessed is the key to human evolution which is very closely related to the type of technology and its efficiency. In the evolution of the human, taming or domestication of the fire was perhaps the first major technological breakthrough which made it possible for the human to transform its food into digestible entity besides giving human security and warmth. For the first time perhaps human was able to create CO₂ containing smoke. However, the CO₂ creation was definitely at a very small scale convertible easily into Oxygen by the floral processes of photosynthesis. It was also the time when man was using only the man power which was enhanced only with the weapons such as bow and arrow, spear, harpoon, needle, etc. The second major technological breakthrough was when the human started animal and plant domestication during the Neolithic time. This technological change is responsible for the sudden population boom due to manifold increase in the amount of energy per capita per unit of time harnessed. Change from man power to horse (animal) power was made possible during this phase. Furthermore, change in the raw material of the tools from stone to metal starting with copper, bronze and ultimately iron increased the efficiency of the tools to such an extent that human were able to develop civilizations in true sense of the term. High energy potentials resulted in production of manifold quantity of food which emancipated human ingenious for development of science, arts, sculptures, mathematics,



architecture and sundry other capabilities and creations. Subsequently, in this phase of human development, man also learnt to use the fossil fuel, especially coal was required to create high temperature needed for melting of iron ores. In the words of White (1943), “..when man domesticated animals and brought plants under cultivation, he harnessed powerful forces of nature, brought them under his control, and made them work for him.”(p. 341). This technological change led to sudden increase in human population and has thus been rightly called as ‘neolithic revolution’ by the scholars. The next major technological breakthrough was the invention of steam engine and use of fuel, the beginning of industrial revolution. This change was indeed revolutionary resulting in the unprecedented rise in the human population. From the beginning, the technology kept on increasing its efficiency leading to electrification, globalization and communication revolution. We are now at the peak of this technological change and are about to enter into non-fossil fuel based energy society. But the damage in the form of global warming, climate change and depletion of ozone layer has already occurred and the world is facing the crisis needing urgent mitigating measures.

Climate Change in the Past

The past climate change has seen periods of cooling and warming sometimes quite dramatic changes in the climate leading to collapse and proliferation of human population. In the earth history of more than four billion years, there have been quite frequent climate upheavals. The fossil evidences of the past indicate that there was tropical climate in the present day Europe and the present day north America was under one mile thick ice cover. Not very long ago, the Sahara, Middle East and Thar of India were vibrant wet land dotted with lakes and ponds. In fact what is Thar and arid Sindh today was once the Indus Valley Civilization. The year 1816 in the Europe was a year without summer as the volcanic eruption in Indonesia resulted in blocking off the sun’s radiation to the earth resulting into sudden cold year.

According to Kutzbach (1989), the past climate of the earth can be divided into six historical periods. The first period started nearly one billion years ago when photosynthetic organisms appeared for the first time. It was a period of relative warmth as there

was high concentration of CO₂ in the atmosphere resulting in greenhouse effect. With photosynthetic organisms, the high concentration of atmospheric CO₂ started getting converted into organic carbon due to photosynthesis. The subsequent transformation of the carbon led to weakening of the greenhouse effect and consequently earth started cooling as the capacity of the atmosphere to trap the sun’s radiation had weakened. The second period which occurred several hundred million years from now, there was intense geo-tectonic activity resulting in massive upheavals like continental drift and volcanic activities. This led to release of CO₂ in massive amount from the earth’s crust. The sudden increase in the concentration of CO₂ in the atmosphere resulted into greenhouse effect which made the atmosphere of earth warmer. It is estimated that the temperature of earth at that time was 5° C warmer than at present. The warming of earth had its obvious consequences. The biodiversity of the planet earth had to rapidly transform in this period. Many new species thus emerged and at the same time many older species got extinct due to the change in temperature. In the third period which started around 100 million years ago, the geo-tectonic activities again subsided and therefore the outgassing from earth got reduced. As a result, the greenhouse effect started lessening and earth started cooling once again. In the fourth period which started in the past one million years, there has been an alternate cycle of warming and cooling occurring in the period of one lac years. It is called glaciations denoting cooler ice age and inter-glaciations denoting warmer wet age. This has been happening due to elliptical path of the earth around sun. Due to this movement, the earth comes closer to the sun for one lac years and goes farther for next one lac years. Thus, glaciations occurred when the earth was farther from the sun and inter-glaciations occurred when the earth was nearer to the sun. The last two periods are quite recent with the fifth period starting little more than one thousand years when there was fluctuation in the temperature possibly due to solar activity. Thus, around 1,100 years ago, there was warm period in Europe which saw Vikings crossing over to North America which became free of ice due to warming. In Europe especially the Southern Europe there was bumper harvest due to warming of atmosphere. Then the period between 1,400 to 1,800 AD became comparatively cooler period. This resulted in loss of



production and drought like situation in Europe. The sixth period started 150 years ago since when the temperature of earth has increased to about 0.8°C . This period is indeed the most dramatic of all. The important point that is worth noting in our understanding of the climate change in the past is the fact that the climate change has occurred very slowly giving enough time to the species to migrate and adapt to changing temperature. However, it is also true that climate change has been singly most important cause of extinction of the species. It is estimated that nearly 95 percent of the species that once existed on the earth have become extinct due to climate change. The extinction of the dinosaurs is a case in point around 65 million years ago when massive meteor impact resulted in dust cloud formation resulting in cooling of earth and extinction of the dinosaurs.

Climate Change Science: Some Important Landmarks

Aristotle undoubtedly is the father of meteorology, who in 340 BC tried to explain the weather with the help of four elements, namely, earth, water, wind and fire. For nearly 2,000 years there was not much change in our understanding of the weather phenomena till Edmond Halley explained the phenomenon of atmospheric circulation in 1688. According to his thesis, the higher altitudes receive less solar radiation than the lower altitudes and this difference in heat gradient is responsible for atmospheric circulation. Two major breakthroughs in the 18th century consisted of identification of gas composition in the air. In the year 1750, Joseph Black found out that the atmospheric air contains CO_2 . This important study was followed by the path breaking discovery by Henry Cavendish in 1781, who was able to successfully measure the percentage of nitrogen and oxygen in the air.

The phenomena of warming of earth were identified by John Tyndall in 1859. According to Tyndall, the water vapor, CO_2 and other active ingredients in the atmosphere were primarily responsible for the warming of earth. Thus, Tyndall was the first one to estimate the phenomena of global warming which is now established as the basic cause for adverse climate change. Not much was added for many decades on the climate science and it was in the year 1938 that G. S. Callendar made an

estimation of the addition of the CO_2 on the atmosphere. According to Callendar's calculations nearly 150 billion tons of was added to the atmosphere in the span of just 50 years prior to 1938. This certainly had occurred due to industrialization and associated fossil fuel combustion. What was further significant in his calculations was the fact that it was ascertained for the first time that there has been an increase in the earth's temperature to the tune of 0.005°C in the same time period. In recent times, especially post-seventies many significant insights into climate change impacts have been developed and the world community is scientifically well informed about the causes and consequences of the adverse climate change. Although, politics and economics is coming as a very strong barrier in the path of corrective actions for the posterity, the world community is also showing some signs of maturity and is ready to make the required restraint and affirmative action for a better world.

Climate Change and Human Beings

The negative impacts of climate change are going to be quite severe for human beings and the very future of our society depends upon being cautious. We certainly can not continue to live like a high energy consuming and excessive CO_2 emitting society. While some amount of restraints and lifestyle changes are required to meet this challenge, it does not mean that we need to go back to the Stone Age. The first challenge before us is to reduce the CO_2 emission. This can be done by meticulous use of science and emerging technologies. Two-prong strategy to reduce CO_2 emission could be to absorb CO_2 at the source itself. Lime $\text{Ca}(\text{OH})_2$ and monoethanolamine are two very good CO_2 absorvent which can capture CO_2 at the source. On vehicles and emitting sources such mechanisms can work to reduce the emission of the CO_2 . The CO_2 thus captured can be buried under ocean floor under high pressure. Simultaneously, we also look for alternatives to the fossil fuel combustion based energy supply. Solar, hydroelectric, wind, waves, bio-fuel, nuclear energy and fuel cell technology are viable alternatives which have the potential to provide us with green and clean energy. As individuals, there is a need for us to be sensitive to this threat which is actually not very far and distant. As responsible and green citizen, we can start by switching off the electricity point when not in use



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Climate Change Crisis: Need of Clean Energy Options for Rural India

Prof. Umesh Kulshrestha and Manisha Mishra

***'Man is not the creature of circumstances.
Circumstances are the creatures of men'.***

-Benjamin Disraeli

(British Prime Minister in 19th century)

The recent circumstances created by mankind include polluted atmosphere, Land Use and Land Cover Changes, deforestation, urbanization and industrialization etc. All these created circumstances are the root cause of all types of crisis, be it global warming, acid rain, health effects, extreme events, landslides, etc. The planet Earth is beset with a number of such crises, and most of these are induced by human perturbations.

Major variables of the crisis

Population growth, technology business, climate change, energy security and sustainable development are the major variables of the present crisis. These variables are so much interlinked that until an integrated approach is developed, it is not possible to find any feasible solution for future development with objective of sustainability. As compared to 2.55 billion population of 1950, the present 7 billion population of the globe is kind of number explosion representing almost three times more people on the planet. Out of 7 billion, Asian countries such as China and India represent around 2.7 billion having 1.37 and 1.31 billion people respectively. Due to such trends, global energy demand is increased be it a home, office, industry, vehicle or agricultural field.

Coal is considered as a traditional energy source which contributes to above 40% of global electricity. In India, around 54% electricity is produced by the coal powered plants. Per capita energy consumption figures have large discrepancies clearly establishing a positive relationship between technology business and energy consumption. It goes without saying that ever since industrial revolution, most of the greenhouse burden has been contributed by the industrialized nations. But the poor nations are

paying its cost in terms of natural disasters, diseases, climate change and change in hydrological cycle and food productivity crisis etc. OECD countries have 4560 kgcoe per capita energy consumption against 540 kgcoe in India and 1600 kgcoe in China. The emissions of coal combustion are highly dangerous for environment as these have very high concentrations of harmful gases and particulate content. In order to control air quality degradation and to cope with climate change, the world is trying to shift energy dependency to cleaner and renewable fuels such as solar, wind and biofuels. Probably, such alterations will be helpful in global sustainable development.

Global negotiations for searching solutions for climate change

It is true that the present issue of climate justice is one of the most important challenges for global community. In this context it is also true that greenhouse gas emissions have the same impact on the atmosphere irrespective of geospatial region of their origin on the planet. Hence, all the countries should take the best possible action to reduce the impact of greenhouse gases to the mankind. First time in 1992, United Nations Framework Convention on Climate Change (UNFCCC) was held at Rio de Janeiro to respond to the long term objectives for climate change. The convention stressed upon stabilization of the greenhouse gas levels in the atmosphere 'at a level that would prevent menacing anthropogenic interference with the climate system'. A voluntary goal of reducing emissions to 1990 levels by 2000 which was set for developed countries, was not met by most of the countries. UNFCCC has been ratified by 191 parties, including the USA. Further, recognizing the need of stricter action, 1997 Kyoto Protocol was negotiated, which sets binding targets to reduce emissions by 5.2 % below the 1990 levels by 2012. The Protocol entered into force on February 16, 2005, which made the Protocol's emissions targets binding legal commitments for those developed countries that ratified it but the USA has not yet



ratified the protocol. However, the market-based mechanisms, which were established under the Protocol, including international emissions trading and the Clean Development Mechanism (CDM), which became operational with the beginning of Protocol enforcement. After that a series of Conference of Parties (COP) were organized to negotiate for the mitigation strategies related to climate change. COP-15 held at Copenhagen in 2009 provided clear emission pledges by all the major economies of the world. Similar to the previous efforts, this also failed. Most recent conference of UN climate change was held in December, 2015 which is called as the Paris agreement (COP-21). This agreement has been a historic negotiation platform where 197 countries are the signatory to the pact. But presently, only 27 countries have ratified the pact. However, it is observed that even if all the 197 countries ratify the pact, it would be insufficient to meet the conservative goal of keeping global temperature rise within the 2 °C threshold. The ideal goal of 1.5 °C is still far away.

Need of the Hour: Renewable Energy

Recently, in a media interaction at New Delhi, Economist Jeffrey Sachs said, "We cannot combine growth and climate safety using existing technology. The only choice we have is a massive shift of technology from conventional to unconventional energy sources. Some of those technologies exist but are not deployed. India at a minuscule expense can deploy more renewable energy technologies than it does at present. From Nepal and the Himalayas, hydropower can be channelized and used (Pathak, 2014). Vehicles should be powered with electric, fuel cell, advanced biofuels but not internal combustion engines of the traditional sort". It means that only the rapid transition into renewable energy can provide sustainable development in real sense.

Energy security in Indian perspective

Currently, India is the fourth largest GHGs emitter in the world. The Indian economy has been growing at a rate of approximately 7% since 2000 (EIA, 2013). Power sector being the largest energy consuming sector, is the major GHG contributor in India (Fig. 1).

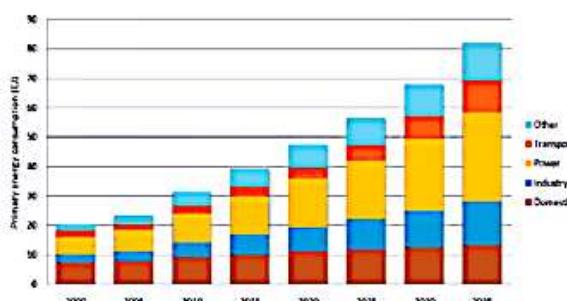


Fig. 1. Sector-wise primary energy consumption in India (UNEP DTU, 2015).

The shifting to renewable energy involves very high capital investments. It will be dream year when India is able to find the solution for reducing the cost of wind and solar storage technologies for a low carbon strategy. At present, only 13.1 % energy comes from the renewable sources in India (Fig. 2).

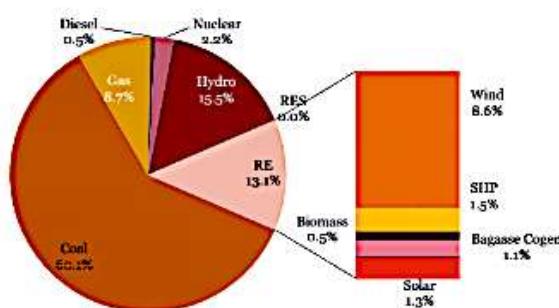


Fig. 2. Total installed capacity (263.66 GW) vs Renewable Energy (RE) capacity of 34.35 GW. (Source: MNRE, 2015).

In fact, the share of renewable energy to the total energy is very small. In order to address this imbalance, India has taken major steps to make use of its renewable sources such as solar, wind and hydro powers which will be indicating India's commitments towards Paris agreement. However, India may take time to ratify the pact. According to the Ministry of New and Renewable Energy (MNRE), India targets to generate 175 GW of power through renewable resources by 2022 (Table 1). A break up of 175 GW consists of 100GW of solar energy, 60 GW of wind, 10 GW of bioenergy and 5 GW of hydro-power.

Solar energy status

Being a tropical country India get huge amount of solar radiation round the year which can be source



of immense energy replacing the thermal power energy and thus reducing air pollution. However, in the past, India did not pay its attention to utilize solar energy as priority source. But recently, it has been realized that the future of country like India lies with more and more dependency on the solar and wind power. Now India has mega plan to trap solar power. It has started the Solar Mission as a sincere beginning towards sustainable development. The International Solar Alliance (ISA) is a brain child of Indian government which was launched by Prime Minister Narendra Modi and French President Francois Hollande on the eve of the COP-21. ISA aims raise funding for setting up of solar power installation and to boost the innovation and cost effective components of the solar power unit. At present, solar energy is costly but it is expected that with ISA and GOI efforts, the cost of solar energy will be lower than the coal energy. Due to significant research developments, as compared to 3-4 years back, the cost of solar energy has come down drastically to around Rs. 7 per kWh. Further this will be lowering to more affordable range in coming 4-5 years. Recently, one German group has reported a break through research in solar cell material claiming 44.7% conversion of sunlight into electricity. If this is feasible, the problem of cost of solar panel will be solved. This will further prosperous rural India. We should not forget that providing affordable and hassle free energy in the villages will result in happy India through rate of employment, productivity and GDP (Kulshrestha, 2015). In this mission, Rajasthan, Gujarat, Andhra Pradesh, Tamil Nadu and Karnataka will be the key role playing states.

Wind Energy status

In terms of wind energy, India is the fifth largest producer in the world. Major wind energy installation have been made in Gujrat, Tamil Nadu, Rajasthan, Maharashtra, Karnataka, Kerala, Andhra Pradesh and Madhya Pradesh states (Table.2). India has immense windmill facilities in these states. The government has also sought to increase the wind energy production target to 60 GW by 2022 from the current 23 GW which is ambitious target. Wind energy is a cleaner energy but at the same time it has great scope to generate employment. According Global Wind Energy Council (GWEC), wind energy can create 213,000 green collar jobs every year.

Table.1. Eight Major wind energy producing states of India.

State	Installed Capacity (as on March 2015)
Tamil Nadu	7,394 MW
Maharashtra	4,370 MW
Gujarat	3,582 MW
Rajasthan	3,053 MW
Karnataka	2,549 MW
Andhra Pradesh	913 MW
Madhya Pradesh	568 MW
Kerala	35 MW

Biofuels status and biorefineries: Clean Energy Supply in Rural Areas

According to definition 'biofuels' are liquid or gaseous fuels produced from biomass resources. The biofuels can be used in place of, or in addition to, diesel, petrol or other fossil fuels. We should differentiate between biofuels and biomass. According to definition 'biomass' resources are the biodegradable fraction of products, wastes and residues from agriculture, forestry and related industries including the biodegradable fraction of industrial and municipal wastes.

India has developed a National Policy on biofuels which aims to ensure that a minimum level of biofuels become readily available in the market to meet the demand, having initial target of 20% blending of biofuels, both for bio-diesel and bio-ethanol, by 2017. According to this policy, the blending level of bio-ethanol has already been made mandatory, effective from October, 2008 while blending levels prescribed in regard to bio-diesel are intended to be recommendatory in the near term.

The policy seems a serious commitment but the production of biofuels has raised several questions especially for first generation biofuel production. The introduction of the first generation biofuel engendered a debate between food security and energy security. There are opinions that the first generation biofuels have potential threat to food security. Also, they are harmful not only for food productivity but also from water conservation and net GHG balance point of view. However, introduction of second generation biofuels is encouraging since they are extracted from non food sources. A simple example of such fuel is

Jatropha which is grown in wasteland without much of water need and hence has no threat to food production. Moreover, the residue of Jatropha can be used as organic fertilizer. Sustainably produced, second-generation biofuels have potential for rural development in order to improve economic conditions in the region. The biofuels can be extracted from whole range of sources including their extraction from the wastes of slaughtered broiler chicken (Sivadasan et al., 2016).

In India, most of bioethanol is produced from molasses which is a byproduct sugar industry. However, present estimates suggest that molasses alone will not be sufficient to provide enough ethanol to India's target to meet the 20% mandate from biofuel among total renewable energy (UNEP DTU, 2015). Approximately 20 biodiesel plants produce 140 to 300 million liters of biodiesel annually. But it is mostly consumed by the local sectors such irrigation and electricity generation etc. (USDA, 2015). Interestingly, the production of ethanol is increased from 1.5 billion liters in 2002 to 2.7 billion liters in 2013 (OECD/FAC, 2014). The Ministry of New and Renewable Energy (MNRE) is planning to launch an integrated bioenergy mission with an investment of Rs 10,000 crores between 2017 to 2022 in order to reduce the consumption of fossil fuels (PSR, 2016).

India produces around 500 million tons of biomass which is burnt mainly in rural areas providing around 32% of primary energy. However, biomass burning emits huge amount of pollutants which are responsible for poor air quality. Biomass and biofuel burning in traditional cook stoves 'Chullah' is a strong source of pollution as it emits huge amount of inorganic as well as organic pollutants (Singh et al., 2014; 2015; Akagi et al., 2011). According to recent research, the improved cook stove is found to provide some relief over traditional cook stove in rural areas (Singh et al., 2014) because the improved cook stove uses less amount of specific type of biomass. Inspite of its maximum utilization, biomass waste and its burning are the major issues related to air pollution and climate change in India. Such problem of air pollution can be solved by setting up of biorefineries which can help in utilizing the optimum energy potential of organic wastes. A variety of biomass can be processed in these refineries generating different products such

as paper pulp, solvents, acetate, resins, laminates, undigested sugars, adhesives, flavouring agents, activated carbon and fuel enhancers etc. which are not generally extracted through traditional processes.

At present, India Glycol Ltd. is working as a biorefinery which is totally based on agriculture waste processing. Another such refinery is proposed in Assam which will be implemented by Numaligarh Refinery Limited (NRL) and a Finnish company Chempolis Oy, where bamboo will be used as a raw material to produce fuel grade bio-ethanol and other by products.

Conclusion

It is high time to put our sincere efforts to implement a holistic program to develop new materials for cleaner energy for its cost effectiveness to make affordable to poor people in rural India. There is an immediate need to shift towards solar and wind energy options. As our country is known for agriculture, production of biomass and agricultural waste is unavoidable for which biorefinery is the need of the hour. These options of energy not only help developing rural India but will give rise to healthier and happier lives in the villages which will further help in increased GDP of the country.

References

- Akagi S. K. et al. 2011. Emission factors for open and domestic biomass burning for use in atmospheric models. *Atmos. Chem. Phys.*, 11, 4039–4072.
- EIA. 2013. "India Country Information," U.S. Energy Information Administration (EIA), Washington, D.C. (See: <http://www.eia.gov/countries/cab.cfm?fips=IN>).
- Goyal, S. 2015. Biorefinery Prospects in India - BioEnergy Consult. (n.d.). Retrieved from <http://www.bioenergyconsult.com/biorefinery-india/>
- IPCC. 2007. Climate Change Mitigation, Agriculture. Cambridge University Press, Cambridge (Chapter 8).
- Kulshrestha U.C. Think of Rural Energy Resources and Biorefineries. *Journal of Energy, Environment & Carbon Credits*, 5, 41-44 (2015).
- MNRE (*Ministry of New and Renewable Energy*). 13 May 2015, Renewable energy in India: Growth and Targets. Ministry of New and Renewable Energy, <http://www.mnre.gov.in> (accessed on 05/09/2016).
- OECD/FAO. 2014. OECD-FAO "Agricultural Outlook 2014," OECD Publishing (See: http://dx.doi.org/10.1787/agr_outlook-2014-en , (Accessed on 16/09/2016).



Excerpts of External Affairs Minister Sushma Swaraj's Address at the 71st UN General Assembly, New York (September 26, 2016) on CLIMATE CHANGE

- Climate change is yet another serious challenge confronting us. There are enough resources on this planet to fulfil everyone's needs, but not enough to fulfil anyone's greed, for greed is limitless. In this context PM Modi has championed a new concept – Climate Justice. If we respect nature, nature will respect and nurture us and future generations. But, if we exploit nature mindlessly, then we must be mindful that nature will unleash its fury upon us. In different parts of the world, we have already seen nature drift towards the unnatural – from torrential rain to excessive heat, from tsunamis to storms and cloudbursts.
- We must curb reckless consumption, and adopt lifestyles in harmony with nature. Yoga, the storehouse of India's ancient wisdom, epitomises a sustainable lifestyle. Let me record our gratitude for the unprecedented global response to the International Day of Yoga.
- In the Paris Agreement, the principle of 'Common but Differentiated Responsibilities' and 'Respective Capabilities' has been acknowledged and accepted. This makes clear that while our responsibility is common, obligations are different. Developed nations must discharge their responsibility in the search for the common good, with finance and technology transfer.
- India has launched an ambitious domestic effort to transform our energy mix to achieve 40% energy from non-fossil fuel sources by 2030. The massive investments required entail a predictable and stable environment towards which we are working actively. Apart from this, our path-breaking initiative for an International Solar Alliance is intended to make efficient solar technology available for all.
- I assure this Assembly that India will continue to play a leading role in combating climate change. We have decided to submit our Instrument of Ratification of the Paris Agreement on October 2, the birth anniversary of Mahatma Gandhi who epitomised a lifestyle with the smallest carbon footprint.

Courtesy: MEA

Climate Change Crisis: Need of Clean Energy Options for Rural India

1

Climate Change and Imperatives for Sustainable Development in India

Prof. Narottam Gaan & Banita Mahanandia

Introduction

Development has been synonymous with industrialization based on fossil fuel technology as defined, started in West in sixteenth century and sprawled and encompassed the entire world. As a part of development, modernization meant application of science and technology to the resources of the earth wantonly and to all the aspects of life in a mechanical way without thinking the disastrous effects of it. In other words, this process of western defined development meant the colonization of the nature. After post second world period this concept of development was adopted by all the non-western countries as a part of westernization and modernization. During these four centuries of development western countries emitted huge amount of Carbon Dioxide and other green house gases to the atmosphere. By the time, developing countries in the Third World started industrialization, the western countries led by US have already usurped three fourth of the space available equitably to all humanity in terms of emission of carbon dioxide. The result of this relentless development has been the environmental degradation and climate change with all their devastating consequences. There is hardly any difference between communism and capitalism so far as the concept of development is defined in this way. It matters little whether means of production are controlled by the state or by private individuals. But the fact is that both the rivers Mississippi and Volga are polluted. What have occupied the centre stage of the concerns of human beings, policy makers, scientists, industrialists, leaders and nations of the world are the climate change and its devastating implications. Our climate is rapidly changing with disruptive impacts, and that change is progressing faster than any seen in the last 2,000 years.

As a consequence of changing climate due to rising levels of carbon dioxide and other heat-trapping gases in the atmosphere that have warmed the Earth causing wide-ranging impacts, including rising sea levels; melting snow and ice; more extreme

heat events, fires and drought; and more extreme storms, rainfall and floods, scientists project that these trends will continue and in some cases accelerate, posing significant risks to human health, forests, agriculture, freshwater supplies, coastlines, and other natural resources that are vital to a state's economy, environment, and quality of life. Because so many systems are entwined with climate, a change in climate can affect many related aspects of where and how people, plants and animals live, such as food production, availability and use of water, and health risks. For example, a change in the usual timing of rains or temperatures can affect when plants bloom and set fruit, when insects hatch or when streams are their fullest. This can affect historically synchronized pollination of crops, food for migrating birds, spawning of fish, water supplies for drinking and irrigation, forest health, and more.

Climate change, also called global warming, refers to the rise in average surface temperatures on Earth. An overwhelming scientific consensus maintains that climate change is due primarily to the human use of fossil fuels, which releases carbon dioxide and other greenhouse gases into the air. The gases trap heat within the atmosphere, which can have a range of effects on ecosystems, including rising sea levels, severe weather events, and droughts that render landscapes more susceptible to wildfires. There is broad-based agreement within the scientific community that climate change is real. The U.S. Environmental Protection Agency, the National Aeronautics and Space Administration, and the National Oceanic and Atmospheric Administration concur that climate change is indeed occurring and is almost certainly due to human interference into the functioning of the nature.

Other human activities, such as agriculture and deforestation, also contribute to the proliferation of greenhouse gases that cause climate change. While some quantities of these gases are a naturally occurring and critical part of Earth's temperature



control system, the atmospheric concentration of CO₂, did not rise above 300 parts per million between the advent of human civilization roughly 10,000 years ago and 1900. Today it is at about 400 ppm, a level not reached in more than 400,000 years. Even small increases in Earth's temperature caused by climate change can have severe effects. The earth's average temperature has gone up 1.4° F over the past century and is expected to rise as much as 11.5° F over the next. That might not seem like a lot, but the average temperature during the last Ice Age was about 4° F lower than it is today.

Our understanding of climate change is largely the result of the rigorous study and research undertaken by the Intergovernmental Panel on Climate Change (IPCC), the world's most authoritative voice on the topic. Established by the United Nations, the IPCC assesses the scientific and socio-economic information relevant to climate change. The IPCC also looks at the potential impacts of climate change, and options for slowing it down or adapting to it. The IPCC has released several assessment reports over the years. More than 2,500 scientific expert reviewers, 800 contributing authors and 450 lead authors from over 130 countries contributed to the last one, the Fourth Assessment Report. Despite the international scientific community's consensus on climate change, a small number of climate change deniers continue to deny that climate change exists or that humans are causing it. However, these individuals are generally not climate scientists, and their arguments have been discredited by the scientific community at large. The debate is over about whether or not climate change is real; it is now time to act to solve the problem.

Climate change and its impact on India

India is the fastest-growing major economy in the world. It is the fourth largest greenhouse gas (GHG) emitter, accounting for 5.8 percent of global emissions. India's emissions increased by 67.1 percent between 1990 and 2012, and are projected to grow 85 percent by 2030 under a business-as-usual scenario. By other measures, India's emissions are relatively low compared to those of other major economies. India accounts for only 4 percent of global cumulative energy-related emissions since 1850, compared to 16 percent and 15 percent for the United States and

China. India produces about 2 tons of CO₂ per capita, versus 20 tons and 8 tons in the United States and China respectively. Climate change will make monsoons unpredictable; as a result, rain-fed wheat cultivation in South Asia will suffer in a big way and the total cereal production will go down. Industrial development is important for economic growth, employment generation and improvement in the quality of life.

However, industrial activities without proper precautionary measures for environmental protection are known to cause pollution and associated problems. If ecological and environmental criteria are forsaken, "industrialise and perish" will be the nature's retort. Now, there is a global consensus about the threat posed by the climate change. The disagreement is only, on how to go about altering human activities that unleash greenhouse gases, fuelling global warming.

"Warming of the Climate System is unequivocal", says the IPCC in its latest report, pointing to the increased global, air and ocean temperatures, widespread melting of snow and ice and rising sea levels. If the introduction of these greenhouse gases continued to soar, global temperature could rise up by 2.40C to 6.40 C by the end of the century, with far-reaching consequences for the climate, warned the IPCC. The report has given fresh impetus to finding solutions to the global warming problem. The summit meeting of the Group of Eight Industrialised countries (G8) to be held in June in Germany is expected to launch new initiatives for collective action by both rich nations and fast growing developing countries to combat climate change. The report provides hope that concerted action can make a real difference in the next quarter century. The panel is convinced that greenhouse gases in the atmosphere can be pegged at relatively safe levels, with measures that will not affect GDP growth.

It is little surprise that the panel found that owing to human activity, gas emissions, primarily CO₂, raised by 71 per cent between 1970 and 2014. What is of great interest to policymakers is the actionable part of the report, which addresses emissions by sectors such as energy producers, transport, buildings, land use, agriculture, and forestry. Much of that



challenge lies in implementing carbon capture and storage technologies in the energy supply sector, which in the past three and half decades has been responsible for a 145 per cent increase in gas emissions.

Climate change will make monsoons unpredictable. As a result, rain-fed wheat cultivation in South Asia will suffer in a big way. Total cereal production will go down. The crop yield per hectare will be hit badly, causing food insecurity and loss of livelihood. The rising levels of the sea in the coastal areas will damage nursery areas for fisheries, causing coastal erosion and flooding. The Arctic regions, Sub-Saharan Africa, small islands and Asian mega deltas, including the Ganga and Brahmaputra, will be affected most.

Changes in climate around the globe are expected to trigger a steep fall in the production of cereals, says R K Pachauri, chairman of the IPCC. He estimated that a rise of 0.5 degree Celsius in winter temperatures could cause a 0.45 tonne per hectare fall in India's wheat production. The average per hectare production in India is 2.6 tonnes. Worse still, Pachauri said, total agricultural land will shrink and the available land may not remain suitable for the present crops for too long. Farmers have to explore options of changing crops suitable to weather. He also pointed out that climatic changes could lead to major food security issues for a country like India.

The report also predicts huge coastal erosion due to a rise in sea levels of about 40 cm resulting from faster melting of glaciers in the Himalayan and Hindukush ranges. It can affect half-a-million people in India because of excessive flooding in coastal areas and also can increase the salinity of ground water in the Sunderbans and surface water in coastal areas. India needs to sustain an 8 to 10 per cent economic growth rate, over the next 25 years, if it is to eradicate poverty and meet its human development goals, according to a 2006 report on an integrated energy policy prepared by an expert committee of the Planning Commission. Consequently, the country needed at the very least to increase its primary energy supply three or four -fold over the 20013-14 level.

India's economic growth would "necessarily involve increase in (greenhouse gas) emissions from

the current extremely low levels." Any constraints on such emissions by India, whether direct, by way of emission targets, or indirect would reduce growth rates, the report stated. However, the report also added, "India should be willing to contain her (greenhouse gas) emissions as long as she is compensated for the additional cost involved."

In his Budget speech the year by Union Finance Minister Mr. Arun Jetly has promised the appointment of an expert committee 'to study the impact of climate change on India and identify the measures that we may have to take in the future'. The Union government has recently constituted the committee, headed by R Chidambaram, Principal Scientific Adviser to the government.

Indian Stand

India has been arguing at all climate negotiations that though it is among the top 10 emitters of carbon dioxide, the per capita emission is still one-sixth of the global average. Further, it has managed an 8 per cent growth with only a 3.7 per cent growth in energy consumption. Starting from Kyoto protocol to the Paris talk India has been fighting for historical and differential responsibility to apportion the amount of carbon dioxide on nations on the basis of their past record of emissions to the atmosphere as the western countries including US have been solely responsible for four centuries of emissions. It is their responsibility to clean the dirt they have made of the atmosphere. What they are emitting can be said as luxury emissions whereas the emissions by the developing countries like India after 1950s are for survival. Kyoto protocol has given priority to Indian stand but it was later on not ratified by the Annex-1 countries. In Paris talks attention has been given to nationally determined voluntary emissions with inclusion of historical and differential responsibility. But the question is to what extent developed industrialized countries will abide this commitment to provide funds for curtailing emissions and adapting to the climate change and technologies to mitigate the onslaught of climate change. India may oppose any move to seek its commitment to reduce greenhouse gas emissions and will ask the developed world to transfer Intellectual Property Rights with the clean technologies.



India needs to chart out a roadmap for itself in the light of the report on climate change. Climate change can be mitigated in many ways, such as improving the efficiency of energy - intensive devices, vehicles and buildings, all of which involve direct and indirect gas emissions. Developing countries like India must adopt new energy - efficient technologies. Fuel - efficient vehicles, hybrid vehicles, and affordable and safe public transport need policy support in the form of lower taxes and promotion of usage. The government can mandate that buildings integrate green technologies such as solar photovoltaic systems, which are particularly relevant in a country with plentiful sunlight. The energy efficiency of end user equipment can be ensured through appropriate tax breaks and certification systems. The improved cooking stoves and high efficiency lighting, heating and cooling devices are available even today.

Climate Change and Sustainable Development in India

The problem does not remain confined to the imperatives of reducing emission of carbon dioxide and other green house gases and keeping the temperature of the earth down to the level of 1.5° Celsius at the pre-industrial level and adapting to climate change. What remains significant is how to take measures that will very fast decelerate the emission and meet the needs of present generation along with that of future generations and the nature. It involves the great task of redefining western ingrained development with the moral imperatives of controlling one's wants, inordinate consumption and way of life. This complex task of meeting the basic human needs of the present and future generations along with that of the nature and at the same time promoting economic growth and development is what is meant by sustainable development. The climate change talks have given importance to sustainable development as central to keeping the temperature of the earth at 1.5 degree Celsius.

At present time it is the primary concern of all nations of the world. Globally, every country including most developing countries like India and China think very much about it because they realise that their future generation must be sufferer due to lack of resources which are obviously most central to survive. This phenomenon comes after Second

World War. The concept of sustainable development is related not only to future generations but also with the present generation.

Sustainable development ensures the well-being of individual by integrating social development, economic development, and environmental conservation and protection. Development should be defined in such a way that it does not affect the environment in any way but at the same time it meets the basic human needs of those who are in most need at present without compromising the needs of the future generations including the environment and the imperatives of economic growth to sustain the increasing populations of India. It was coined in 1987 by the United Nations-appointed World Commission on Environment and Development, also known as the Brundtland Commission.

The climate change issue is part of the larger challenges of sustainable development. As a result, climate policies can be more effective when consistently embedded within broader strategies designed to make national and regional development paths more sustainable. The impact of climate variability and change, climate policy responses, and associated socio-economic development will affect the ability of countries to achieve sustainable development goals. The pursuit of these goals will in turn affect the opportunities for, and success of, climate policies. In particular, the socio-economic and technological characteristics of different development paths will strongly affect emissions, the rate and magnitude of climate change, climate change impacts, the capability to adapt, and the capacity to mitigate.

Environment a key component of sustainable development

Economic Development without environmental considerations can cause serious environmental damage, in turn impairing the quality of life of present and future generations. Such environmental degradation wreaks havoc on the society and life of the people and needs to be explicitly factored into economic planning, with necessary remedial measures. The challenge of sustainable development thus requires integration of the country's quest for economic development with its environmental concerns. The National Environment policy 2006 has



attempted to mainstream environmental concerns in all our developmental activities. It underlines that 'while conservation of environmental resources is necessary to secure livelihoods and well being of all, the most secure basis for conservation is to ensure that people dependent on particular resources obtain better livelihoods from the fact of conservation, than from degradation of the resource'.

The Government of India, through its various policies, has been factoring ecological concerns into the development process so that economic development can be achieved without critically damaging the environment. The strong sustainable development agenda followed by India incorporates rigorous environmental safeguards for infrastructure projects, strengthening of the environmental governance system, revitalizing of regulatory institutions, focusing on river conservation, and efforts for improvements in air and water quality, on a continuous basis. Our environmental standards are set through Government policies aiming at a development process that is environmentally sustainable and ensures well-being of the people.

The broad objectives of our environmental policies and programmes are:

1. Conservation of flora, fauna, forests, and wildlife;
2. Prevention and control of pollution;
3. Afforestation and regeneration of degraded areas;
4. Protection of the environment..

As a country, India has been in the forefront of preserving biodiversity, sustainable management of forests, reducing emissions intensity of the economy, and following sustainable consumption and production patterns. Specifically, India has been following a development path that takes into consideration the needs of the present generation without compromising the ability of future generations to meet their needs. Suitable attention has been given to protecting and conserving critical ecological systems and resources and invaluable natural and man-made heritage, which are essential for life-support, livelihoods, economic growth, and a broad conception of human well-being. Moreover, the effort has been to ensure equitable access to environmental resources and quality for all sections of society, in particular to ensure that poor communities which are

most dependent on environmental resources for their livelihoods are assured secure access to these resources.

India is seriously plagued by a strange phenomenon of coal paradox. India is a nation receptacle with rich supplies of indigenous coal but unable to develop them efficiently. One big challenge is dearth of sufficient water to keep coal-fired power plants humming. For example, in the coal-belt region of Chhattisgarh, many farmers are haunted by the spectre of having new plants to divert precious river water. As reported profusely, local communities in the coal-rich state of Meghalaya complain that rat-hole coal mining has destroyed the environment. A recent government ban on the practice has pitted powerful mine owners and their wage laborers against locals faced with coal-infested rivers and wells.

As ubiquitously known climate-related threats to dams in India's Himalayan states are abound. Many news reports stand as a witness to this fact that June 2013 flood wrecked new and existing hydropower projects in Uttarakhand, with major implications for India's efforts to increase supplies of electricity, efforts meant in part to compensate for energy- and water-wasting agriculture in Punjab.

These examples highlight the challenges India faces in securing adequate supplies of food and energy in a century of rapidly changing environmental and economic conditions. Within each sector – food, water, and energy – can be found many more challenges, from insufficient food storage facilities and contaminated drinking water, to huge losses in energy transmission and distribution. Just as significant is India's struggle to develop state and national strategies to address these challenges. The various dimensions of India's natural resource conundrum can be broadly grouped into three categories.

Inadequacy of supply to meet the demands

India is not a resource-scarce nation. India's reserves of water, fertile land, and indigenous energy are ample. Yet supply cannot keep up with prodigious demand of the ever growing population. India's ravenous resource appetite can be attributed to rapid



population growth, a growing economy, and vast agricultural needs. Water is a particular concern. "We are moving from a water-stressed to water-scarce situation," warns Joydeep Gupta of The Third Pole Project. "We have sufficient water for our current needs, not future needs". Girija Bharat of The Energy and Resources Institute says the gap between water supply and demand is expected to be 50 percent by 2030. "We have sufficient water for our current needs, not future needs," says Arunabha Ghosh of the Council on Energy, Environment, and Water.

Weather-related factors are a major long-term threat to supply. South Asia is unique because almost all of its freshwater replenishment comes during just four months of the year. Unlike Europe, which receives moderate yet year-round rainfall, South Asia receives only 100 days of annual high intensity rainfall during the monsoon season. Storing water is a major challenge – especially because India's rapid urbanization is leading to the neglect and deterioration of aquifers, ponds, and wells. "When it comes to water," Bharat says, "there are not adequate storage structures for it."

Insufficiency of energy to meet the spiralling demands

The critical importance of natural resource availability – and of securing access to existing resources – cannot be overstated. Despite valiant efforts over four decades, India is not close to supplying enough energy to meet demand. Securing electricity for the 300 million or so people who do not have electricity is not a small task. It can help reduce poverty, strengthen health, allow for more hours to study or work, enhance cooking and food storage facilities, and improve agricultural and manufacturing techniques that can in turn drive productivity and wages upward.

What is the reason?

A simple objective has traditionally driven natural resource policy in India: Produce as much as possible for as many as possible. This policy amounts to treating finite resources as if they are infinite. It is a model that helps explain the yield-boosting yet chemically intensive and water-inefficient industrial agricultural practices of the 1960s, the construction of large dams, and the large-scale importation of

hydrocarbons from abroad. It is politically expedient, delivering the proverbial "goods" to politically significant constituencies, such as farmers. But it is a 20th century construct – at home alongside mega projects, rapid growth, and rising productivity – that does not fit the resource-constrained, climate-changed, population-exploding conditions of the 21st century.

Measures by the government

As per the Second National Communication submitted by India to the UNFCCC, it is projected that the annual mean surface air temperature rise by the end of the century ranges from 3.5°C to 4.3°C whereas the sea level along the Indian coast has been rising at the rate of about 1.3 mm/year on an average. These climate change projections are likely to impact human health, agriculture, water resources, natural ecosystems, and biodiversity.

Wary of the threats imposed by climate change and pressures on natural resources, sustainability and environment are increasingly taking centre stage in the Indian policy domain. India has been part of 94 multilateral environmental agreements. India has also voluntarily agreed to reduce its emission intensity of its GDP by 20-25 per cent over 2005 levels by 2020, and emissions from the agriculture sector would not form part of the assessment of its emissions intensity. Indian economy is already moving along a lower carbon and sustainable path in terms of declining carbon intensity of its GDP which is expected to fall further through lower carbon strategies. It is estimated that India's per capita emission in 2031 will still be lower than the global per capita emission in 2005 (in 2031, India's per capita GHG emissions will be under 4 tonnes of carbon dioxide equivalent (CO₂ eq.) which is lower than the global per capita emissions of 4.22 tonnes of CO₂ eq. in 2005).

Along with the national efforts in different sectors, India also recognizes that rural areas are equally prone to stress and pressures from natural resource exploitation. In this context, schemes for rural development and livelihood programmes are very relevant. A vast majority of the works under the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) are linked to land,



soil, and water. There are also programmes for non-timber forest produce-based livelihood, promotion of organic and low-chemical agriculture, and increased soil health and fertility to sustain agriculture-based livelihoods. These schemes help mobilize and develop capacities of community institutions to utilize natural resources in a sustainable manner and their potential can be further developed. Together with efforts to incorporate sustainability in the rural development process, India is increasingly making efforts to integrate the three pillars of sustainable development into its national policy space. Various policy measures are being implemented across the domains of forestry, pollution control, water management, clean energy, and marine and coastal environment. Some of these are policies like Joint Forest Management, Green Rating for Integrated Habitat Assessment, Coastal Zone Regulation Zone, eco labelling and energy efficiency labelling, fuel efficiency standards etc. Over a period of time, a stable organizational structure has been developed for environment protection. The country has been making fast progress in increasing its renewable energy capacity and has displayed the fastest expansion rate of investment of any large renewable market in the world in 2011, with a 62 per cent increase to \$12 billion (Frankfurt School of Finance and Management 'Global Trends in Renewable Energy Investment 2012'). The Twelfth Five Year Plan with a prominent primacy to sustainability makes provisions and provides for many more opportunities like these.

Working on the social and economic pillars of sustainable development policies, programmes and targeted schemes have been introduced to eradicate poverty. This is done either through a direct focus on economic indicators like employment generation, youth mobilization, and building up assets of the poor, or indirectly through social indicators of human development with emphasis on health, education, and women's empowerment. Many parameters on this front have shown improvement. The poverty headcount ratio declined by 7.3 percentage points from 2004-5 to 2009-10, maternal mortality rate (MMR) dropped from 301 per 100,000 live births in 2001-3 to 212 in 2007-9; literacy rates have been constantly rising and are estimated to be 82.14 per cent for men and 65.46 per cent for women as per the 2011 Census

of India. However, India is still not on target to meet some key MDGs by 2020.

Over the years arguments in favour of looking beyond the conventional measure of GDP and taking into account the environmental damage caused by production of goods and services received attention. An expert group under the chairmanship of Prof Sir Partha Dasgupta has been set up to develop a framework for 'Green National Accounts' for India. In fact, the Central Statistics Office (CSO) under the Ministry of Statistics & Programme Implementation (MOSPI) has been publishing comprehensive environment statistics since 1997. The process of putting in place a system for natural resources accounting was initiated by MOSPI way back in 2002.

Despite all these efforts, the reality that confronts us on the environmental front continues to be harsh and complex. Increasing population, urbanization, and growing demand for water and land resources have severely impacted the quality and availability of water and soil resources. Rising energy needs is another area of concern. Besides, rapid growth will require corresponding growth in energy supply. Presently a large share of our energy demand is met through coal and oil and this trend will continue, given the unprecedented surge in energy demands of the burgeoning population and resource constraints. Energy issues become more complex with existing energy poverty and rise in energy prices. There is considerable scope for increasing efficiency in the use of energy and water in India together with other development indicators like infant mortality rate, MMR, sanitation facilities, and public health services. Economic instruments, regulatory measures, and market mechanisms can play an important role in helping to achieve development and growth in a sustainable manner.

The Paris Agreement

The Paris Agreement at the 21st Conference of Parties (COP 21) under the United Nations Framework Convention on Climate Change (UNFCCC) by 195 nations in Paris in December 2015 sets a roadmap for all nations in the world to take actions against climate change in the post-2020 period. This universal agreement will succeed the Kyoto



Protocol. The agreement reflects the principles of equity and common but differentiated responsibilities and respective capabilities (CBDR-RC), in the light of different national circumstances. The Paris Agreement aims at keeping the rise in global temperatures well below 2°C. The new agreement seeks to follow a country-driven approach (bottom-up approach) with the contribution by each country to the global fight against climate change determined at national level. Intended Nationally Determined Contribution (INDC)s are plans by governments communicated to the UNFCCC regarding the steps they will take to address climate change domestically. As per the COP 19 decision (Warsaw 2013), all Parties were requested to prepare their INDCs and communicate them well in advance of COP 21. Accordingly, India submitted its INDC to the UNFCCC on 2 October 2015.

India's Intended Nationally Determined Contribution (INDC): Climate Change Contributions:

1. To put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation.
2. To adopt a climate friendly and cleaner path than the one hitherto followed by others at a corresponding level of economic development.
3. To reduce the emissions intensity of its GDP by 33 to 35 per cent of the 2005 level by 2030.
4. To achieve about 40 per cent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030 with the help of transfer of technology and low cost international finance including from the Green Climate Fund (GCF).
5. To create an additional carbon sink of 2.5 to 3 billion tonnes of CO₂ equivalent (CO₂ eq.) through additional forest and tree cover by 2030.
6. To better adapt to climate change by enhancing investments in development programmes in sectors vulnerable to climate change, particularly agriculture, water resources, the Himalayan region, coastal regions, health and disaster management.
7. To mobilize domestic and new and additional funds from developed countries for implementing these mitigation and adaptation actions in view of the resources required and the resource gap.
8. To build capacities, create a domestic framework and an international architecture for quick diffusion of cutting-edge climate technology

in India and for joint collaborative R&D for such future technologies.

Development paradox

With the introduction of liberal market economy and lifting of borders due to globalization multinational corporations are invited to India to establish industries, mega projects and to control the market and indirectly to control the state. To provide jobs to the growing youths in India the government has been in favour of multinational corporations. As a consequence of industrialization by the MNCs, there will be more pollution, more emission of carbon dioxide, climate change and environmental degradation. India's international commitment to reduce carbon dioxide as agreed to in Paris will be seriously stymied. Further, India in order to meet the energy needs of the burgeoning populations, has to depend on fossil fuels like coal as it has huge repository of coals. This will increase the emission rate of carbon dioxide. The result of this will be a gigantic shift from non-renewable resources of energy to renewable sources of energy. The present government has already put emphasis on these renewable sources of energy in order to decrease its dependence on traditional sources of energy. It has started to shift its priorities in terms of how it manages the country's economy and natural resources. Some changes are visible on the ground: Renewable energy is gaining traction and ambitious solar and wind targets have been set.

An inclusive holistic approach

The following parameters need to be understood and included while defining sustainable development in India:

Nature space: In the policy making for development the space for nature must be recognized and respected. With a religious dedication the nature must be kept intact thinking that it plays a prominent role in survival of humanity and existence of the earth. The approach to nature must not be mechanical, anthropogenic and exploitative. Development is not at the expense of nature. Deification of nature will enable India to meet its international commitment to reduce emission of carbon dioxide to the atmosphere and the obligations to the future generations in terms of fulfilling intergenerational equity and accountability.



Human space: In the development process human beings should not be commoditized. No attempt should be made to reduce human beings to mere economic beings. The values and ethics which govern human relations and its abidingness with nature followed since time immemorial must be cultivated and internalized in the process of development. Apart from his economic needs fulfilment of other needs is one of the cornerstones of sustainable development.

Societal space: The extension of human space is societal space. In the conceptualization of development society should not reduced to a market and human beings to mere commodities. Every society has a culture and tradition of its own. Society has an economy and a development not economy determines society. This kind of established thinking in the paradigm of development has been nuisance to sustainable development. Development should be all inclusive. It is from bottom to the top not vice versa. The village must play prominent role in defining its development looking to its own tradition, culture, needs, environment and resources. Not dedication to western concept of development will ensure sustainable development.

Imperatives of ethics and morality

There are no limits to human wants and desires. But there are limits to availability of natural resources. The problem is about lack of restraint on demands. Spiritual values must be internalized in order to learn the habits of putting limits on one's inordinate desires, wants and exorbitant life style at the cost of nature and other human beings. Atomized individualism has not been the Indian tradition. Human being is a social self. The obligations to other human beings who are in most need, the needs of nature and the needs of future generations must be one of the fundamentals of sustainable development.

Conclusion

Climate change is one of the complex problems facing mankind today. The overriding complexity of the problem is attributed to its deeper global ramifications on a vast range of issues impacting the very survival of life on Earth. Understanding such a complex issue with vast and varied dimensions and implications, assumes greater significance for all stakeholders, especially for our policy makers. Therefore, there is

an imperative need to take urgent and strong measures in the interest of calibrating an appropriate response to meet the emerging challenges of climate change. Nations have come forward to deal with the crisis with such a concern not seen before as is evidenced from various meets and conferences attended by them on climate change.

Climate change is not an isolated issue. It has several aspects and inter-linkages namely, science and technology, economy and trade, diplomacy and politics - that makes it not just another issue in this complicated world of proliferating issues, but the mother of all issues. Climate change, however, is different from other problems facing humanity and it compels us to think differently at many levels. It obliges us to think about what it means to live as part of an ecologically interdependent human community. In the face of much diversity that characterizes human society, climate change provides a potent reminder of one thing that we share in common - the planet Earth. All nations and all people share the same atmosphere. And, we only have one. Addressing the climate chaos by all the countries both individually and collectively will be critical to the human well-being and prosperity of the present as well as the future generations.

Climate change is the defining issue of our times. It is perhaps, the greatest challenge to sustainable development. It should be addressed by all countries with a shared perspective, free from narrow and myopic considerations. The developed countries need to look beyond their narrow self interests and work jointly with the developing countries to evolve cooperative and collaborative strategies on the issue of climate change, which is of immense relevance for the future of mankind. However, the efforts so far in the direction of meeting the challenges of climate change have been sporadic and incoherent. We urgently need a new economic paradigm, which is global, inclusive, cooperative, environmentally sensitive and above all scientific. According to Jeffrey Sachs, a perceptive commentator, "The world's current ecological, demographic and economic trajectory is unsustainable, meaning that if we continue with "business as usual" we will hit social and ecological crises with calamitous results". Sustainable development based on



addressing the needs of the poor and optimal harnessing of scarce resources of water, air, energy, land, and biodiversity will have to be sustained through more cooperative endeavours. Then alone, we could make some headway in saving our lone planet from the brink of climate disasters.

The Millennium Development Goals (MDG) that were in place from 2000 to 2015 were replaced by the Sustainable Development Goals (SDG) with the aim of guiding the international community and national governments on a pathway towards sustainable development for the next fifteen years. A new set of 17 SDGs and 169 targets were adopted by the world governments in 2015. The SDGs are effective from January 2016 and will end in 2030. One of the core elements of the outcome document of the SDGs was an effective follow-up and review architecture which is crucial for supporting the implementation of the new agenda. Taking leads from its progress on the MDGs, India will have to prioritize its SDGs, as it will be difficult to target each goal. Instead of paying a religious dedication to western concept of development India must define its own concept of development on the bedrock of its culture and tradition. There is no poverty of philosophy in India to look to other for defining development. There are as many paths of development as varieties of societies and civilizations.

References

- An Assessment of the Intergovernmental Panel on Climate Change: Climate Change 2007: Synthesis Report.
- Bruce, J. P., Lee, H. and Hates, E. F., Climate Change 1995: Economic and Social Dimensions of Climate Change, Contribution of Working Group III to the Second Assessment Report of Intergovernmental Panel on Climate Change (IPCC), Cambridge University Press, Cambridge, 1996.
- Chandler, W., Schaffer, R., Dadi, Z., Shukla, P. R., Tudela, F., Davidson, O. and Alpan-Atamar S., Climate change mitigation in developing countries, Report, The Pew Center on Global Climate Change, Washington DC, October, 2002.
- Climate Change 2011: Synthesis Report, Intergovernmental Panel on Climate Change, Geneva, Switzerland, 2011.
- Climate Change and its Impact of India (<http://www.greenpeace.org/india/campaigns/choose-positive-energy/what-is-climate-change...>).
- Coping with Climate Change: Gautam Dutt and Fabiina Gaioli (Economic & Political Weekly, 20 Oct., 2007).
- G. Ananthapadmanabhan, What should be India's stand at Bali climate meet?, The Economic Times, 20 November 2007.
- Garg, A., Ghosh, D. and Shukla, P. R., Energy sector policies and mitigation of GHG emissions from India. In Climate Change Economics and Policy: Indian Perspectives (ed. Toman M.), Resources for the Future Publication, Washington DC, 2003.
- Global Environmental Outlook, United Nations Environment Program (UNEP), Oxford University Press, 2009.
- Human Development Report: 2015, United Nations Development Programme (UNDP), Oxford University Press, New York.
- Impacts of Climate Change: Western and Central India (www.sciindia.org/programme/geg/pdf/western.pdf).
- India's Initial National Communications to the United Nations Framework Convention on Climate Change, Ministry of Environment and Forests, New Delhi, 2004.
- Indian Vision 2020, SP Gupta Committee Report. Planning Commission, New Delhi, 2002
- Keynote speech by Angel Gurria, OECD Secretary-General, during the World Energy Council Energy Leaders Summit, London, 16 September 2008.
- M.S. Swaminathan, For an Action Plan for Bihar, The Hindu, 5 September, 2008
- Michael Kugelman and Fecima Banaji, India's Food, Water, Energy Conundrum: Conclusions From a Two-Year Reporting Project [Part I of 2], Wilson Centre, ECSP, March 24, 2015
- Nair, R., Shukla, P. R., Kapshe, M., Garg, A. and Rana, A., Analysis of long-term energy and carbon emission scenarios for India. In Mitigation and Adaptation Strategies for Global Change, Kluwer Academic Publishers, Dordrecht, 2003.
- P.P.Sangal, India's Climate Change Action Plan, The Economic Times, New Delhi, 29 July, 2008.
- Ravindranath, N. H. and Sathaye, J., Climate Change and Developing Countries, Kluwer Academic Publishers, Dordrecht, Netherlands, 2002.
- Ravindranath, N. H., Joshi, N. V., Sukumar, R. and Saxena, A., Impact of climate change on forests in India. Curr. Sci., 2005
- Rupa Kumar, K. et al., High-resolution climate change scenarios for India for the 21st century. Curr. Sci., 2005
- Sean Peoples, Broken Landscape: Confronting India's Water-Energy Choke Point
- January 2015, ECSP, Wilson Centre
- Shukla, P. R., Rana, A., Garg, A., Kapshe, M. and Nair R., Climate Change Assessment for India: Applications of Asia Pacific Integrated Model (AIM), Universities Press, Hyderabad, 2004
- Shukla, P. R., Sharma, S. K., Ravindranath, N. H., Bhattacharya, S. and Garg, A. (eds), Climate Change and India: Vulnerability Assessment and Adaptation, Universities Press, Hyderabad, 2003.
- Speech of the Prime Minister of India, Dr. Manmohan Singh at G-8 Summit on Climate Change, July 9, 2008, Hokkaido, Japan.



Climate Change and Sustainable Development

Prof. Manas Chakrabarty

Introduction

Climate change is a significant and lasting change in the statistical distribution of weather patterns over periods ranging from decades to millions of years. It may be a change in average weather conditions, or in the distribution of weather around the average conditions (i.e., more or fewer extreme weather events). Climate change is caused by factors such as biotic processes, variations in solar radiation received by Earth, plate tectonics, and volcanic eruptions. Certain human activities have also been identified as significant causes of recent climate change, often referred to as "global warming". Today, Earth's climate system is fast approaching a crisis. Time is running out, but catastrophe is not inevitable. Around the world people are now living with the consequences of an altered climate—with intensified and more frequent storms, wildfires, droughts and floods. For some it's already a question of survival. (Flanery, 2015). It may be said that the term climate refers to the climate of a region or city which is its typical character. When we say that in this region, heavy rain occurs or in other region summer continues for a long time or in some other region winter persists or at a particular region lukewarm weather is felt, it is the climatic condition of a place. But of late, everywhere there is a hue and cry that there has been a change in the climatic condition. Naturally, it is imperative to make an analysis of the issue and go deep into the problem. In recent times the scientists and the scholars are concerned with one serious aspect of the society and the world which is nothing but climate change. It is discernible that climate of the world is under constant change and global warming has become a major challenge to mankind. Due to climate change the question of sustainable development has become one of the major areas of analysis because the scientists of the world are very much concerned about the future generations. It is also an issue that whether the change in the climatic condition would lead to the extinction of mankind. Under the circumstances, the issue of climate change

and sustainable development has become relevant in the present context.

To be precise, the term climate change means a change in global or regional climate patterns. In fact, the term climate change has come into limelight or main focus in view of the fact of a change which is apparent from the mid to late 20th century onwards. The major reason which may be attributed to a large extent to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels. Again, it may be said that, climate change is a change in the statistical distribution of weather patterns when that change lasts for an extended period of time (i.e., decades to millions of years). It may further be stated that climate change may refer to a change in average weather conditions, or in the time variation of weather around longer-term average conditions. Climate change is caused by factors such as biotic processes, variations in solar radiation received by Earth, plate tectonics, and volcanic eruptions. (Wikipedia Encyclopedia).

In precise terms, climate change refers to the increase of Earth's average surface temperature due to effect of greenhouse gases. It may be attributed to carbon dioxide emissions from burning fossil fuels or mainly due to deforestation. It is known that the trees trap heat and due to massive deforestation the earth is becoming a victim of radical climate change. Therefore, it may be said that climate change refers to a change in the typical or average weather of a region or city or a particular place. This may refer to a change in a region's average annual rainfall, or it could be a change in a city's average temperature for a given time frame. It should be stated that climate change also refers to a change in Earth's overall climate. We should remember that there is a difference between weather and climate. While the term weather refers to the short-term changes that can be seen in temperature, clouds, precipitation, humidity and wind in a region or a city. Naturally, we can say that the



weather may vary greatly from day to day or even within the same day. We experience a wide variation in the weather of a particular place. It may so happen that in the morning it is heavily raining but after a couple of hours there may be bright sunshine or in the morning the weather may be cloudy and cool but by afternoon it may be sunny and warm or vice versa. (Chakrabarty, 2015). On the other hand, the climate of a region or city is its weather averaged over a long period of time. It should be said that this is usually different for different seasons. A region or city may be warm and humid during summer but it may tend to be cold and snowy during winter exhibiting different pattern. (Chakrabarty, 2015).

Although the science of climate change is well established and there are well known policy instruments that could significantly reduce green house gas (GHG) emissions without prohibitive economic costs, political obstacles to more determined action remain despite heightened concern among mainstream politicians and the public. (Hugh, 2010). It is now generally agreed that climate change is occurring and that greenhouse gas emissions need to be cut very significantly if it is to be brought under control. Different scientists have expressed serious concerns about global warming for a quarter of a century or more. In fact, it has become a major area of research in view of its impacts on the society. There is pressing demand that this issue must be taken up with utmost seriousness for the well being of the world at large. Yet within the past few years, climate change has assumed a very large presence in discussion and debate, and not just in this or that country but across the world. (Giddens, 2009). The issue of human-induced global climate change became a major environmental concern during the twentieth century, and is the paramount environmental debate of the twenty-first century. Response to climate change requires effective interaction from the scientific community, society in general, and politicians in particular. (Bolin, 2007). From the scientific point of view, it may be said that the rate at which energy is received from the sun and the rate at which it is lost to space determine the equilibrium of temperature and climate of Earth. This energy is distributed around the globe by winds, ocean currents, and other mechanisms to affect the climates of different regions. This cycle is mainly responsible for

a change in the climatic condition whether at a particular region or the whole world. A pertinent question comes at this juncture is that why we are speaking of climate change? It is so because the earth's climate is always changing, it is on a continuous process of change. It is known that in the past, Earth's climate has gone through warmer and cooler periods, each lasting thousands of years. But the present condition is undergoing a rapid change. That is why we speak of climate change. In order to understand why we witness the change in climate we should focus on the factors that can shape climate. These are called climate forcings or "forcing mechanisms". It should be stated that these include the processes like variations in solar radiation, variations in the Earth's orbit, variations in the albedo or reflectivity of the continents and oceans. There are a variety of climate change feedbacks that can either amplify or diminish the initial forcing. It is pertinent to note that some parts of the climate system, such as the oceans and ice caps, respond more slowly in reaction to climate forcings, while others respond more quickly and becomes discernible very quickly. It is also to be mentioned that there are also many key threshold factors which when exceeded can produce rapid change in the total climatic conditions. It should be mentioned in this connection that the forcing mechanisms can be either "internal" or "external". So far as the internal forcing mechanisms are concerned, it is a natural process within the climate system itself. On the other hand, the external forcing mechanisms can be either natural or anthropogenic. It is important to note that climate change has many aspects which have to be understood and considered in their totality and not in isolation. The science of climate change considers the observational evidence, attempts to model the processes within the climate system, and ventures to make projections and predictions of climate over the next century or longer. Climate change has a major political angle, because when developed and developing countries come together to discuss it, the past history of exploitation comes into conflict with the hopes for a better future. (Kelkar, 2010). Dr. Heidi Cullen, one of the world's foremost climatologists and environmental journalists, puts a vivid face on climate change, offering a new way of seeing this phenomenon not just as an event set to happen in the distant future but as something happening right now in our own backyards. (



Cullen,2010) that if we continue to emit carbon dioxide we may eventually cancel the next ice age and raise the oceans by 50 meters. The great ice sheets in Antarctica and Greenland may take more than a century to melt, and the overall change in sea level will be one hundred times what is forecast for 2100. By comparing the global warming projection for the next century to natural climate changes of the distant past, and then looking into the future far beyond the usual scientific and political horizon of the year 2100.

It should be stated that from the 1992 Rio Earth Summit to the 2009 Copenhagen Climate Conference there was a concerted international effort to stop climate change. Yet greenhouse gas emissions increased, atmospheric concentrations grew, and global warming became an observable fact of life. Our failure to prevent or even to respond significantly to climate change, Jamieson argues, reflects the impoverishment of our systems of practical reason, the paralysis of our politics, and the limits of our cognitive and affective capacities. The climate change that is underway is remaking the world in such a way that familiar comforts, places, and ways of life will disappear in years or decades rather than centuries. Climate change also threatens our sense of meaning, since it is difficult to believe that our individual actions matter. The challenges that climate change presents go beyond the resources of common sense morality — it can be hard to view such everyday acts as driving and flying as presenting moral problems. Yet there is much that we can do to slow climate change, to adapt to it and restore a sense of agency while living meaningful lives in a changing world. (Jamieson, 2014).

It is a matter of great concern that climate change is profoundly altering our world in ways that pose major risks to human societies and natural systems. We have entered the Climate Casino and are rolling the global-warming dice, warns economist William Nordhaus. But there is still time to turn around and walk back out of the casino. (Nordhaus,2014).It is also pertinent to note that in *Under a Green Sky*, Ward explains how the Permian extinction as well as four others happened, and describes the freakish oceans—belching poisonous gas—and sky—slightly green and always hazy—that would have attended

them. Those ancient upheavals demonstrate that the threat of climate change cannot be ignored, lest the world's life today—ourselves included—face the same dire fate that has overwhelmed our planet several times before (Ward, 2007). It is important to note that Climate change differs from any other problem that, as collective humanity, we face today. If it goes unchecked, the consequences are likely to be catastrophic for human life on earth. Yet for most people and for many policy-makers too, it tends to be a ‘back of the mind’ issue. We recognise its importance and even its urgency, but for the most part it is swamped by more immediate concerns. Politicians have woken up to the dangers, but at the moment their responses are mainly on the level of gesture rather than being, as they have to be, both concrete and radical. Political action and intervention, on local, national and international levels, is going to have a decisive effect on whether or not we can limit global warming, as well as how we adapt to that already occurring. In fact, we do not have a systematic politics of climate change. Politics-as-usual won't allow us to deal with the problems we face, while the recipes of the main challenger to orthodox politics, the green movement, are flawed at source. Giddens introduces a range of new concepts and proposals to fill in the gap, and examines in depth the connections between climate change and energy security. (Giddens,2009).There is no denying the fact that the planet is hurtling even more rapidly than previously acknowledged to a climatic point of no return. Although the threat of human-caused climate change is now widely recognized, politicians have failed to connect policy with the science, responding instead with ineffectual remedies dictated by special interests. that there is still time to do what we need to save the planet. Urgent, strong action is needed, and it is high time to set the agenda going forward to create a groundswell, a tipping point, to save humanity—and our grandchildren—from a dire fate more imminent than we had supposed. (Hansen, 2009).

We may also refer to the great work on climate change by Lynas. In 2001, the Intergovernmental Panel on Climate Change (IPCC) released a landmark report projecting average global surface temperatures to rise between 1.4 degrees and 5.8 degrees Celsius (roughly 2 to 10 degrees



Fahrenheit) by the end of this century. At 1 degree Celsius, most coral reefs and many mountain glaciers will be lost. A 3-degree rise would spell the collapse of the Amazon rainforest, disappearance of Greenland's ice sheet, and the creation of deserts across the Midwestern United States and southern Africa. A 6-degree increase would eliminate most life on Earth, including much of humanity. (Lynas,2007). We must be concerned about the implications of melting permafrost in Siberia and the huge river systems of meltwater beneath the icecaps of Greenland and Antarctica to the effects of the "ocean conveyor" and a rare molecule that runs virtually the entire cleanup system for the planet(Pearce,2007). Once we understand what excites, threatens, and motivates us, we can rethink climate change, for it is not an impossible problem. Rather, we can halt it if we make it our common purpose and common ground. (Marshall, 2014). What we should do about it depends on what matters to us and what we think is right. (Garvey, 2008).

At this juncture we may take up the issue of climate change and sustainable development. But before that let us understand the concept of sustainable development. Over the past few years, "Sustainable Development" (SD) has emerged as the latest development catchphrase. A wide range of nongovernmental as well as governmental organizations have embraced it as the new paradigm of development. (Lele, 1992). It must be admitted that the discussion of sustainable development has frequently proved confusing. Some writers are concerned with the sustainability of the natural resource base, others with present or future levels of production and consumption. (Redclift, 1992). However, emerging recognition of two fundamental errors under-pinning past polices for natural resource issues heralds awareness of the need for a worldwide fundamental change in thinking and in practice of environmental management. (Folke, 2002). As the term 'sustainable development' has been embraced by the political mainstream, its meaning has drifted from its original concern with ensuring future ecological stability towards ensuring sustainable material growth; it is no longer a challenge to the conventional economic paradigm. (Rees,1990). However, it must be admitted that there is no agreement about the precise meaning of sustainable

development, but one idea which is increasingly in good currency is that sustainable development requires that the stock of capital that one generation passes on to the next be maintained or enhanced (Victor,1991). In modern times we have started speaking about the concept of Sustainable Development. In fact, it has become a burning topic for discussion at all levels of the society at large and its discussion is not confined to any particular geographical locality, rather it has crossed the boundary of every country and reached up to the level of UNO. As per record, the term was first popularized by the world conservation strategy in the year of 1980. The term Sustainable development is a difficult concept to define. The main reason behind this is that it is in a continually evolving state. Therefore, it has become more difficult to lay down a proper definition of the concept. It is further said that a critical review of the multidisciplinary literature on sustainable development reveals a lack of a comprehensive theoretical framework for understanding sustainable development and its complexities. A critical review shows that the definitions of sustainable development are vague; there is a lack of operative definitions and disagreement over what should be sustained; the concept is unclear in terms of emotional commitment; and it "remains a confused topic", "fraught with contradictions". (Jabareen,2008). As a fashionable catchword, 'sustainable development' has provoked a large but nebulous literature. In the interests of communication and relevance it is necessary to narrow down the various definitions that have been given and show how a revised conception of sustainable development can be integrated into practical decision making. (Pearce, 1988). However, the concept may be defined as a development that meets the needs of the present generation without compromising the capability of the future generation to meet their own needs and requirements. (United Nations World Conference on Environment and Development, 1987). In precise terms, Sustainable development refers to: balancing the fulfillment of human needs with the protection of the natural environment so that these needs can be met not only in the present, but in the indefinite future. The term was used by the Brundtland Commission which coined what has become the most oft-quoted definition of sustainable development as development



that "meets the needs of the present without compromising the ability of future generations to meet their own needs." For the sake of convenience we may divide the major areas of sustainable development into four general categories, viz. social, economic, environmental and institutional. (Victor, 1991).

It is therefore clear that sustainable development is development that takes the impact on the environment into account and tries to minimize environmental damage to the maximum possible extent. It should be stated that Sustainable development is generally thought to have three components: environment, society, and economy. It is well nigh impossible to deny the fact that the well-being of these three areas is very closely intertwined. As for example, a healthy, prosperous society relies on a healthy environment to provide food and resources, safe drinking water, and clean air for its citizens. The sustainability paradigm rejects the contention that casualties in the environmental and social realms are inevitable and acceptable consequences of economic development. It is therefore said that sustainability to be a paradigm for thinking about a future in which environmental, societal, and economic considerations are balanced in the pursuit of development and improved quality of life. In this connection it may be stated that the National Town Meeting on Sustainability (May 1999) in Detroit, Michigan, established the fact that the term "sustainable development," although frequently used, is not well understood. We believe that it means new technologies and new ways of doing business, which allow us to improve quality of life today in all economic, environmental, and social dimensions, without impairing the ability of future generations to enjoy quality of life and opportunity at least as good as ours". Therefore it may be said that the main objective of sustainable development is to make a nice balance between the present and the future with regard to natural resources. In order for development to be sustainable, it has to be comprehensive—it has to successfully balance economic goals with social and environmental. (Soubbotina). It may further be stated that balancing economic and social development with environmental protection is at the heart of the notion of sustainable development as set out in the London Communiqué. (Hammond, 2000).

As we know that in earlier times it was possible on the part of the human being to migrate from one place to the other because the number of population was much less. But with the advent of civilization, it has become difficult to find any vacant space because of population explosion throughout the world. Accordingly, we are occasionally faced with a million dollar question that do these have any bearing on the future generations? If our reply goes in the positive, then we must now determine what and how much we owe future generations and shall we be responsible for closing all possible options for all the future generations. It is therefore high time to look into the matter and find a proper solution to this vexed problem, otherwise we will be drifting from our responsibilities for the succeeding generations.

In today's society, the communities face several challenges and thronged problems because of the fact of the social, economic, and environmental resources are being damaged to an unparalleled level. It is so because all the elements of the community are deeply interconnected with each other. There are a host of problems that are faced by us in the society. The most important problems that pose a threat to the mankind are : disease, criminal activities, denial of justice, abuse of children (who are buds of the community) shortage of energy, avenues of employment, extinction of rare species, perennial poverty, deforestation, demons of pollution, disintegration of families and many others social and economic problems.

Accordingly, we should be careful about the interdependence of the economic, environmental, and social justice elements of the world which demand new line of thinking about things and that of taking action that will truly create a future where human society and nature can coexist with mutual benefit and where the suffering caused by poverty and natural resource abuse is eliminated from the surface of the society so that the mankind do not suffer. We must accept that all these are demonic problems with which the society is confronted with. Therefore, the major aim of Sustainable development is improving the quality of life for all of the people of this world without increasing the use of our natural resources beyond the earth are carrying capability. It should be taken into consideration that sustainable development may



require different actions in every region of the world, the efforts to build a truly sustainable way of life require the integration of action in the key areas. It should be taken into account that without integration, sustainable development would be next to impossible. There is no denying the fact that integration of actions and activities are two pole stars in this regard which must be obeyed and adhered by all. Further, there should be a global economic system which should be interlinked and an integrated approach must be fostered for a long term growth and all the nations must be incorporated in the race and we must keep a close vigil so that no nations are left behind in the process of development. If we fail in this regard, our major objective would be seriously impaired. It is also necessary that sincere attempt must also be taken to conserve natural resources for the future generations and there should be an all out effort to stop pollution in the societal set up.. Our prime motive should be social development and at the same time we should be careful so that the cultural heritage, social diversity, the rights and liberties of the people at large are duly honoured and respected and most important of all is that all members of the society must be duly empowered so that they can take active part in shaping of their own future. It is the most important dimension of sustainable development.

It is to be remembered that sustainable development is regarded as a parallel consideration for healthy and natural environments, a good life in the true sense of the term, and above all, human well-being. In this great and gigantic job, a variety of areas must be included. Most notable of them are : issues of population explosion, change in the climate, economic well being and prosperity, energy generation and conservation, proper use of natural resources, scientific waste management, biodiversity, protection of watershed , improved technology, development of agriculture, safe drinking water supply, freedom from terrorism, global security, clean politics, green conservation and green generation, sustainable cities, proper and healthy community/family relations, observance of human values, and many other areas. In short, all matters that directly affect the people in the society must be taken into consideration.

In this connection, it is important to refer to the recent move taken under the auspices of the

United Nations Organisation. In a historic move on 1st September,2015, the United Nations General Assembly adopted a resolution transmitting to its seventieth session, a sweeping post 2015 development agenda aimed at eliminating poverty and hunger, protecting the planet and fostering peace, it is said in the Preamble to the novel idea of Transforming Our World: the 2030 Agenda for Sustainable Development.

The Agenda is a plan of action for 5 Ps: people, planet, prosperity, peace and partnership. It also seeks to strengthen universal peace in larger freedom. All the countries agreed to one general fact that eradicating poverty in all its forms and dimensions, including extreme poverty, are the greatest global challenge and an indispensable requirement for sustainable development. This is of prime importance to fulfill the goal. It was resolved to free the human race from the tyranny of poverty and want and to heal and secure the planet. It was determined to take the bold and transformative steps which are urgently needed to shift the world onto a sustainable and resilient path. In this journey, no one will be left behind. The 17 Sustainable Development Goals and 169 targets which were announced demonstrate the scale and ambition of this new universal Agenda. They seek to build on the Millennium Development Goals. They seek to realize the human rights of all and to achieve gender equality and the empowerment of all women and girls. They are integrated and indivisible and balance the dimensions of sustainable development of the economic, social and environmental. The Goals and targets will stimulate action over the next fifteen years in areas of critical importance for humanity and the planet.

1. People

All the nations determined to end poverty and hunger, in all their forms and dimensions, and to ensure that all human beings can fulfill their potential in dignity and equality and in a healthy environment.

2. Planet

It was further determined to protect the planet from degradation, including through sustainable consumption and production, sustainably managing its natural resources and taking urgent action on climate change, so that it can support the needs of



the present and future generations. Accordingly, sufficient care was given to this important aspect.

3. Prosperity

It was also determined to ensure that all human beings can enjoy prosperous and fulfilling lives and that economic, social and technological progress occurs in harmony with nature. A careful balance was sought to be taken up.

4. Peace

Fostering of peace had been an important area. It was determined to foster peaceful, just and inclusive societies which are free from fear and violence. Peace has been given a special importance because there can be no sustainable development without peace and no peace without sustainable development is possible.

5. Partnership

For any great job, partnership is of prime importance and significance. It was determined to mobilize the means required to implement this Agenda through a revitalised Global Partnership for Sustainable Development, based on a spirit of strengthened global solidarity, focussed in particular on the needs of the poorest and most vulnerable and with the participation of all countries, all stakeholders and all people. It should be stated that the inter linkages and integrated nature of the Sustainable Development Goals are of crucial importance in ensuring that the purpose of the new Agenda is realised. If we realize our ambitions across the full extent of the Agenda, the lives of all will be profoundly improved and our world will be transformed for the better.

Conclusion

The issue of climate change has become a universal phenomenon. From Africa to Asia and Latin America, the era of climate wars has begun. Extreme weather is breeding banditry, humanitarian crisis, and state failure. (Parenti, 2011). The fact of global warming is not in question and that its consequences for the world we live in will be disastrous if left unchecked. (Gore, 2006). We should take into account the fact that dwindling resources, massive population shifts, natural disasters, spreading epidemics, drought, rising sea levels, plummeting agricultural yields, crashing economies and political extremism. These are some of the expected consequences of runaway climate change in the decades ahead, and any of them could tip the world towards conflict. (Dyer, 2008). It is important to refer that in *The Revenge of Gaia*,

James Lovelock- father of climate studies and originator of the influential Gaia theory which views the entire earth as a living meta-organism-provides a definitive look at our imminent global crisis. Lovelock guides us toward a hard reality: soon, we may not be able to alter the oncoming climate crisis. Lovelock's influential Gaia theory, one of the building blocks of modern climate science, conceives of the Earth, including the atmosphere, oceans, biosphere and upper layers of rock, as a single living super-organism, regulating its internal environment much as an animal regulates its body temperature and chemical balance. But now, says Lovelock, that organism is sick. It is running a fever born of the combination of a sun whose intensity is slowly growing over millions of years, and an atmosphere whose greenhouse gases have recently spiked due to human activity. Earth will adjust to these stresses, but on time scales measured in the hundreds of millennia. It is already too late, Lovelock says, to prevent the global climate from "flipping" into an entirely new equilibrium state that will leave the tropics uninhabitable, and force migration to the poles. (Tickel, 2006). At the conclusion it is necessary to refer to some of the major impacts. It may be stated that some impacts are already occurring. As for example, the sea levels are rising, and snow and ice cover is decreasing to a large extent. Again, the rainfall patterns and growing seasons are changing. Further sea-level rise and melting of snow and ice are likely as Earth warms. The warming climate likely will cause more floods, droughts and heat waves. The heat waves may get hotter, and hurricanes may get stronger. Rapid growth in industry, agriculture, and transportation since the Industrial Revolution has produced additional quantities of the natural greenhouse gases and other more potent greenhouse gases, augmenting the thermal blanket. It is generally accepted that this increase in the quantity of greenhouse gases is trapping more heat and increasing global temperatures, has been disruptive and harmful to a great extent. Despite numerous actions worldwide which call for adoption of more sustainable strategies, relatively little has been done on a practical level so far on the pretext that the issue is too complex and not fully understood. (Azapagic, 2000). However, at the end it should be stated that sustainable development is a process in which economics, finance, trade, energy, agriculture, industry and all other decisions are implemented in



such a manner so that it becomes an important tool to usher into a society which is economically, socially, and environmentally sustainable in all respects. Therefore, the prime objective of sustainable development is to meet the needs of the present without compromising the ability of the future generations to meet their needs by properly maintaining the balance. A proper balance in the use of the natural resources is a must for a proper sustainable development. The UN Secretary General Ban Ki-moon succinctly expressed: "it encompasses a universal transformative and integrated agenda that heralds an historic turning point for our world." In this regard, the document preamble to 'Transforming Our World: The 2030 Agenda for Sustainable Development" is very relevant to quote. It has rightly been noted: "We are resolved to free the human race within this generation from the tyranny of poverty and want to heal and secure our planet for the present and for future generations". It continues, "We are determined to take the bold and transformative steps which are urgently needed to shift the world onto a sustainable and resilient path. As we embark on this collective journey, we pledge that no one will be left behind." The Programme of Action which has been undertaken is definitely a novel one for all round prosperity of the entire global society. The Policy Guidance sets out best practice in developing and operating strategic processes for sustainable development, and on how development cooperation agencies can best assist developing countries in such processes, and includes a set of principles which underpin the development of effective strategies in many developing countries. (Dalal, 2002). Therefore, it is a time to extend our hand for the achievement of the goal as set in the UN Agenda which can transform the entire global society into a new one that would be a boon for the future generations. There is no time to waste. "we are the last generation that can make this happen, and this is the last possible moment at which we can make it happen." (Monbiot, 2007). It is therefore of utmost importance that we should take into account the aspect of climate change and at the same time we should look into the aspect of sustainable development so that the future generations are not pushed towards extinction. It is a great responsibility of the current generation for the future generations.

REFERENCES

- Azapagic, A. & S. Perdan - Indicators of Sustainable Development for Industry: A General Framework
Process Safety and Environmental Protection, Volume 78, Issue 4, July 2000,
- Bolin, Bert- A HISTORY OF THE SCIENCE AND POLITICS OF CLIMATE CHANGE (CAMBRIDGE UNIVERSITY PRESS, 2007)
- Chakrabarty, Manas- The Politics of Climate Change.
World Focus. October, 2015.
- Cullen, Heidi -The Weather of the Future (2010 Harper)
- Dalal, Barry -Clayton and Stephen Bass- SUSTAINABLE DEVELOPMENT STRATEGIES A RESOURCE BOOK (2002.Earthscan Publications Ltd London • Sterling, VA.)
- Dyer, Gwynne- Climate Wars (2008 Random House Canada)
- Flannery, Tim -Atmosphere of Hope: Searching for Solutions to the Climate Crisis (2015 Atlantic Monthly Press)
- Folke, Carl, Steve Carpenter, Thomas Elmqvist, Lance Gunderson, C. S. Holling and Brian Walker- Resilience and Sustainable Development: Building Adaptive Capacity in a World of Transformations
- AMBIO: A Journal of the Human Environment 31(5) 2002.
- Giddens, Anthony -The Politics of Climate Change (2009, Polity Press)
- Gore, Al -An Inconvenient Truth: The Planetary Emergency of Global Warming and What We Can Do About It (2006 Rodale Books)
- Hammond, G.P. - Energy, Environment and Sustainable Development: A UK Perspective Process Safety and Environmental Protection Volume 78, Issue 4, July 2000.
- Hansen, James-Storms Of My Grandchildren: The Truth About The Climate Catastrophe And Our Last Chance To Save Humanity (2009 Bloomsbury Publishing PLC)
- Hugh Compston, Ian Bailey (eds) - Turning Down the Heat: The Politics of Climate Policy in Affluent Democracies. (Palgrave Macmillan, 2008)
- Jabareen Yosef - A New Conceptual Framework for Sustainable Development
- Environment, Development and Sustainability April 2008, Volume 10, Issue 2,
- Jamieson, Dale -Reason in a Dark Time: Why the Struggle Against Climate Change Failed — And What It Means for Our Future (2014 Oxford University Press, USA)
- Kelkar, R R- "Climate Change: A Holistic View" (Hyderabad, B.S. Publications, 2010).
- Lele, Sharachchandra, M. - Sustainable development: A critical review
World Development, Volume 19, Issue 6, June 1991
- Lovelock, James E -The Revenge of Gaia
- Crispin Tickell (Foreword by) (2006 Basic Books)
- Lynas, Mark -Six Degrees (Fourth Estate (GB) 2007)
- Monbiot, George Monbiot, Matthew Prescott-Heat: How to Stop the Planet From Burning (2007 by South End Press)
- Nordhaus William D. - The Climate Casino: Risk, Uncertainty, and Economics for a Warming World. (2013 Yale University Press)
- Parenti, Christian -Tropic of Chaos: Climate Change and the New Geography of Violence (2011 Nation Books)
- Pearce, David - Economics, equity and sustainable development, Futures, Vol 20, Issue 6, December, 1988.
- Redclift Michael - The meaning of sustainable development Geoforum. Vol.23, Issue 3, 1993.
- Subbotina, Tatyana P-Beyond Economic Growth: An Introduction to Sustainable Development.
The World bank Washington, D.C.
- The International Bank for Reconstruction and Development. The World Bank. 1818.
- Victor, Peter A. - Indicators of sustainable development: some lessons from capital theory.
Ecological Economics ,Volume 4, Issue 3, December 1991,
- Ward, Peter D. -Under a Green Sky: Global Warming, the Mass Extinctions of the Past, and What They Can Tell Us About Our Future (2007 Smithsonian)
- Wikipedia Encyclopedia



Sustainable Development and Energy Security

Prof. Subhadra Mitra Channa

Those of us who are past the age of fifty can recall a time when resources like water were seen as unlimited in nature and one could just drink water out of a tap, or a stream or a river, depending upon whether one was living in the city or a village. Today, even a breath of fresh air is becoming a luxury and the rich have air purifiers in their homes while the not so rich are struggling with gasping lungs to survive in an environment that has been poisoned by humans. Water, especially potable water is again become a luxury that the rich can drink out of a bottle; every other source including rivers and streams are poisoned, even the water one gets in the tap in one's home is no longer safe to drink. Water tables are shrinking , streams and lakes are drying up, once mighty rivers are reduced to a dribble and the main source of fresh water, the snows are being depleted at an alarming rate. It is not happening only in the poorer countries but even in riche countries like the USA, where the west coast is undergoing rapid desertification, putting at risk, cities like Las Vegas, that are expected to turn into deserts in the near future. Huge lakes are drying up in that region. Very soon, the world may see a situation of war over water. Today's age is called Anthropocene, as it is one in which most of global environment is conditioned not by natural causes but by the actions of humans. Even food is being genetically modified and nature is increasingly commodified (Lappe and Bailey 1998).Over a period of time the perspectives on what it means to be human has changed. Till the medieval ages, the humans were seen as subordinated to the divine will, in whatever way "divine" was understood in different cultures and in different regions of the world. But the Renaissance saw a great resurgence of human confidence in their ability, especially in the western world, that ushered in the Age of Enlightenment. A belief in human power of thinking and the ability of humans to dominate over nature was the dominant paradigm that was the guiding spirit behind the methodology of science or rather of western science. Along with developments in the field of science came the age of capitalism, colonization

and the emergence of democratic forms of government. With World War II, there remained no doubts about the human ability to conquer nature and also the huge optimism that ensued with respect to technology.

A new world emerged that believed less in the divine than it did on human ability to technologically conquer the environment. The first prime minister of India, Jawaharlal Nehru is often remembered for his famous statement that the "Dams were the temples of a modern India". However over the years as human or anthropogenic activities have severely damaged nature, has depleted forests, polluted air and water and is fast on its way to eliminate almost half the species on this globe; doubts are surfacing as to the efficacy of the so-called technology that was to have fixed all the problems of survival of humans. Grave doubts are being cast on the every efficacy and rationality of science that has now been contextualized as "western science" by its critics, especially from the feminist platform (Haraway 1988). There is a growing recognition about forms of efficacious knowledge other than that of western science, about ways of life other than that engendered by the capitalist consumerist culture and the irreverence for all forms of life other than human (Harding 1991). Academicians have begun to take a fresh look at those cultures and forms of knowledge that were condemned as "superstition" or "ignorance" and trashed by the western colonial regimes that had imposed their own philosophies and ways of life across the globe, not because such ways and modes of knowledge were actually superior but because they had power; a nexus, namely that of knowledge and power, that has now famously been recognized by modern day philosophers like Michel Foucault.

The contemporary world is faced with the prospects of a potential threat that looms large over the globe, that of unprecedented transformations of the earth's landscape that may threaten all life out of



existence. Two kinds of energy sources are recognized, namely renewable and non-renewable; the latter consists largely of fossil fuels that have driven the development of industrial technology over the past three hundred years or so (Elliott 2003). Even today coal, mined from the heart of the earth remains the primary source of energy and it is non-renewable. No matter how much coal and petroleum products still remain the bowels of the earth, they are finite and are likely to finish some time or the other. Renewable energy are those that derive from sunlight, from the chlorophyll stored in plants that is the ultimate source of organic energy that is found in all forms of life. Nature recycles this energy from one life form to another, but nature is not partial. She has a system, and that is based on harmony and equity. Human greed and selfishness disrupts this balance of nature. It is these human activities that are believed to have caused the climate change and global warming that is at present playing havoc in the form of a continuous spate of natural disasters and many believe that if unchecked this trend will ultimately destroy the earth as we know it. However such apocalyptic views are not shared by everyone and many feel that global environmental threats may have been exaggerated; yet the confidence that scholars or even the general public had, in the almost godly powers of science and the potential of human technology to provide a good life for all on the planet seems considerably eroded. The future has ceased to look as bright as it did several decades back. At the time, soon after the World War that saw unprecedented advances in the field of scientific knowledge, and also at a time when the newly emerging nations were trying to secure their futures, the buzz word was "development". Most of these nations were trying to make up in what they perceived as an unequal race, to establish their credentials as advanced and worthy of respect, to get over the stigma of being, "colonized"; to deal with problems of poverty, economic backwardness and what was then perceived as cultural inferiority as well. To counter the dominance of western societies, the solution was seen in imitation and a race to emulate the way of life that by its very history of colonization had established itself as superior. The view taken of development in that era was in terms of materialistic goals of building big cities, of spectacular infrastructure, bridges and roads, dams and sky scrapers; more concrete and more artificial

environments. Technological innovations were directed towards increasing communication, making travel faster, making war more destructive and conquering as much of the environment, inclusive of flora and fauna; as possible. Nature was equated with the wild and civilization with the conquest of nature.

However increasingly it was felt that technology could not make possible the replacement of primary sources of energy that all life captures from the sun. In the initial phase of the development of human civilization, large tracts of primary forest were converted to agricultural fields. Removal of forests and replacing them with human habitations and cultivation was the first step by which humans established themselves as conquerors of their environment. With the industrial revolution and harnessing of mechanical sources of energy, humans thought that they had made huge strides towards what they considered as the good life. Yet within a span of less than three hundred years since the Industrial revolution, the world is no longer so sure about what development is all about. Today many are rethinking development and the term sustainable development has been adapted at all world forums, such as the World Social Science forum held in Durban in September 2015, where not only was development understood in terms of sustainability but renowned social scientists from across the world identified poverty and inequality as the driving forces behind environmental degradation and the looming disaster that we may face as a consequence. What is important to note is that the problem has moved beyond that of technology and is now recognized as largely economic, social and political (Kopnina and Shoreman-Quimet 2001).

Huge loss of primary forest cover all across the world, is now seen as a scenario of dark clouds of disaster rather than a happy state of being civilized. It is now realized that for humans to survive, they have to survive as one species equally placed in the web of life, that is not a ladder of increasingly superior beings, but a system of interdependent species, each having its own place in the schema of nature. The superiority of humans as a species is seriously doubted as with advances in science, it is being shown that



every species has its role in nature and the survival of each is dependent on the survival of the whole. The moot question related to the survival of humans as a species was that they could not survive at the expense of the others and also that the precious resources on which they had built their civilization, were finite; they would disappear, if no care was taken. In their march towards greater and greater technology and greater and greater use of this technology to extract from the earth, all her resources; the humans had achieved a huge explosion in their own population, at the expense of all others. Since there is but one earth, in their disproportionate leap in population density, the human species had managed to wipe out many others from the face of this earth. Not only that human interference and exploitation and degradation of their ecological niche, is leading to the disappearance of thousands of species almost on a daily basis.

Paradoxically when non-human species disappear, they do not make way for humans to take over their resources; for the very survival of these resources is dependent upon the survival of these species. Thus the survival of the tiger is linked to the survival of its habitat, which also facilitates in the long run the survival of humans. Thus if the tiger survives, large tracts of natural forests that provide a resource base for the tiger need to survive and these forests, as we now understand, are the life line for the survival of the human race.

In the world of today, the concept of "development" has been replaced by the term "sustainable development"; a transformation that is highly significant in the backdrop of the present discussion. What is here understood by "sustainable"? (Brundtland 1987) In an ordinary sense sustainable means simply something that can be carried forward, something that has a longer life or something that is plausible. In the context of development of human, it has both technological as well as a moral and ethical connotation. While the first aspect, that is the technological one, simply refers to a procedure; the latter raises many questions related to rights, entitlement and ethics of use. It has been argued, while putting forward this concept, that the present generation of humans are exceeding their entitlement over the resources of this earth, because they have

inherited resources from their ancestors that they are not conserving for their future generations or their own children. It is being argued that the present generation has no moral right to use up the resources of the generations to come, as they have already received from their ancestors, the means by which they are now sustaining their lives. It is argued that our predecessors on this earth did leave us with water to drink, air to breathe and food to eat, as well as a place on which to stand and to live. It now becomes our moral duty to ensure that the generations to come also receive the bounties that we had received. In terms of rights, we can spell it out as the rights of the unborn generations, the rights of our future progeny. There was a time when human kind was thinking only of more and more exploitation of resources. The mindset that was ushered in with a capitalist society, was that of aspiring for more and more; to tear apart the earth and extract every drop of her resources. Even today, disastrous projects like deep sea mining are being conceptualized, more by the so-called developing countries like India and China, than by may be the already developed. There has also been the political debate between the erstwhile colonized countries and the metropoles, the countries of the western world that had colonized and consequently ravaged the resources of their colonies. Those from the Third world argue that the colonizers had built their wealth on the resources of these countries but now, in the name of environment protection, they are asking them to stop using their own resources; like the tropical forests that remain in Indonesia and Brazil. In the earlier phase, that of colonization, the modern day developed countries had preserved their resources, and also regenerated them; as in the USA and Europe, where large scale environmental protection plans have served to both preserve and renew much of their forest and environmental wealth. It was also realized, that with their superior technology and enormous wealth, countries like USA were leaving a huge impact on the environment, in terms of carbon foot prints (that is the amount of Carbon dioxide they were releasing in the atmosphere) than most of the Third world combined. This has led to a worldwide debate about fixing responsibility for conservation on those who are guilty than those who are the sufferers. It has also led to the doubtful practice of carbon trading initiated by some Republicans in the USA. But it has its obvious criticism that by making



the polluter pay, one is not saving the resource, simply converting damage into monetary compensation. The debate on sustainable development that is development that ensures that the non-renewable resources of the world are not depleted, that the environment is not totally destroyed; also goes into the discourse of justice and injustice, of inequality and exploitation, both internally and externally.

The issues of environment conservation touch upon issues much wider than those of mere technology or management; they are the core issues of political and economic relations worldwide. The large scale commercial farming of live-stock, is seen as seen as one of the key polluters of the atmosphere as cattle release large amount of methane into the atmosphere; and methane is one of the most polluting of all gases. It is the developed countries that consume huge quantities of animal products like milk, cheese, beef and pork. It is countries like the USA that use petroleum products consuming vehicles in the largest numbers. People have large houses, many cars, they eat much more, have lavish standards of living, and thus are using up far more of the earth's resources than people in poor countries who live in small huts, have very little in terms of consumer goods and whose life styles do not impact the environment negatively on such a large scale.

The questions of conservation and sustainability have now raised questions about the concept of development itself. Does development mean only increased consumption? Does it mean that we have more of everything, far beyond our requirements? It is here that the world has begun to take a new look at the non-western world at the philosophies of people like Mahatma Gandhi, who had always preached restraint and non-consumerism. The world is also taking a new look at the so-called "primitive lifestyles"; today elevated to the status of indigenous knowledge and indigenous wisdom, from the erstwhile condemnation as superstition and backwardness. Serious questions are being raised about the efficacy of the so-called modern ways of living. Serious questions are also being raised about following those ways of life in the name of becoming modern. It is now being realized that what we call modern has been mostly imitation of a particular way

of life than any attempts at being rational or wise (Latour).

Developments in scientific knowledge should have led us to realize that we were chasing the wrong goals; that market driven consumerist lifestyle is self-destructive. It is not rational or wise to assume that unlimited exploitation of the world's resources, wastage and recklessness is going to lead us to a sustainable future. Since the ultimate source of energy on this earth is the sun, our relationship to the sun should remain respectful. We should also realize that humans are not the only species on this earth and that the environment is not a system of domination and exploitation but one of co-existence and sharing. Our ancestors, without their complex technology and market driven life style, had let us with a wealth that we are now squandering.

Energy security means that we ensure that there is enough energy left for us to harness for the survival of our species into the future. There are debates about the limits of human technological possibilities. There are people who are prone to arguing that humans do have the technological possibilities to counter the effects of climate change and environmental degradation; yet the spate of environmental disasters the world has been facing in the present does not provide such as assurance. Those of us who were present in New York during Sandy realized that the world's largest economy and the world's most modern city, cannot face up to nature's fury. When a snow storm had shut down Heathrow airport for more than ten days, the then prime minister of Great Britain, David Cameron was heard remarking that this airport was not built to face up to environmental disasters of this scale. The lesson learnt is that more humans are advancing in technology, the more nature is stepping up her scale of destruction (Callison 2014). The wiser and more rational option would be to live in harmony with nature and make no more futile attempts to conquer her. It is only then we can hope that our future generations will have an earth to live on, and have energy sources left for their survival. It is left to disciplines like anthropology to show the way towards cultural co-existence and respect for all forms of life and life ways. Anthropologists have been at the fore front to critique the western models of science and development and



India to ratify Paris Agreement on climate change on October 2, says PM Narendra Modi

Vishwa Mohan | TNN | Sep 25, 2016

NEW DELHI: India will ratify the Paris Agreement on climate change on October 2 - the birth anniversary of Mahatma Gandhi. The country's move will bring this global deal to fight the menace of global warming closer to enter into force later this year.

The big announcement was made by the Prime Minister Narendra Modi during his speech at the BJP party council meet in Kozhikode on Sunday.

India had, in fact, announced its 'climate action plan' (to fight the challenges of climate change) on October 2 last year. It had submitted its 'Intended Nationally Determined Contribution (INDC)' to the UN body on October 1, 2015 and later made it public the next day coinciding it with the birth anniversary of Mahatma Gandhi. So far, 60 countries including the world's top two polluters - China and USA - have ratified the Agreement which was adopted by 195 countries in Paris last December. While China and USA had ratified it on September 3, as many as 31 countries had formally joined the Agreement through formal ratification or acceptance at a special event, hosted by the United Nations Secretary-General Ban Ki-moon in New York, on September 21. The Agreement will enter into force 30 days after 55 countries, representing 55% of global emissions, deposit their instruments of ratification, acceptance or accession with the UN Secretary-General. Though the national ratification has already crossed the threshold of 55 countries, it has so far only accounted for nearly 47.62% of the global emission.

Decision of India, which accounts for 4.1% of the global emission, will now bring it closer to the emission threshold of 55%. The magic figure of 55% will certainly be reached this year as 14 more countries, accounting for 12.58% of the global emission, had on September 21 committed to join the Agreement this year most probably before the beginning of the next UN conference on climate change (COP22) in Morocco in November.

The Paris Agreement calls on countries to combat climate change and to accelerate and intensify the actions and investments needed for a sustainable low carbon future, and to adapt to the increasing impacts of climate change.

It mandates regular meetings every five years, starting in 2018, to review progress and to consider how to strengthen the level of ambition as countries recognised that the present level of climate actions, pledged by individual nations, were still not sufficient to save the world from the adverse impact of climate change. Besides India, the other countries who have announced to join the Paris Agreement through formal ratification this year include Austria, Australia, Bulgaria, Cambodia, Canada, Costa Rica, France, Germany, Hungary, Kazakhstan, New Zealand, Poland, and the Republic of Korea.

(Courtesy: Times of India)

Climate Change, Energy Security & Sustainable Development: A South Asian Perspective

Dr. Sudhanshu Tripathi

In fact climate change, energy security and sustainable development are the interrelated aspects of growth and development process of the entire human endeavour, whose mutual interplay considerably affect the environment and ecological balance anywhere on the earth. Unfortunately, the South Asian region has severely been suffering from several chronic problems for the long past, thereby preventing wider participation of common people in the framing of government policies and decisions and hampering the process of sustainable development in the region. Further the grave environmental challenges have made life unworthy of living for a huge population of more than one-fifth of the human race in South Asia, which like most of the regions in the world, is also affected by the degradation of environment and, consequent, loss in ecological balance. But, both are jointly responsible for growth and survival of flora and fauna and all organisms including human beings in the nature.

Introduction:

Climate, energy security and sustainable development are the interrelated aspects of an evolving environment ensuring survival of human beings and all other species and entire greenery resulting into a perfect ecological balance in the nature, coming down today through past ages. Indeed, the nature has been generous to mankind by providing unlimited bounties like landscapes and forests, mountains and beaches, birds and wildlife and above all air and water without which no organism or even man can survive. While environment is the entire surroundings of air column present on the earth, climate is said to be a sum total of different environmental parameters; like insolation, temperature, pressure, humidity etc., recorded for a shorter period or even day to day basis. In fact, these parameters do affect the overall environment wherein each and every organism and plant derive sustenance for survival. Hence, a balance among all these climatic

factors ensures the origin and survival of entire flora and fauna, including human beings on the earth. Obviously, their imbalance will lead to the gross environmental degradation and, consequent loss of flora and fauna or even their extinction in the end. As the environment provides suitable conditions for survival of all creatures living on mother earth when such suitable conditions of survival are disturbed due to different reasons; like deforestation, rise in temperature due to carbon emission, air and water pollution, excessive and intensive prevalence of electro-magnetic waves in the atmosphere, the resultant environmental degradation puts heavy strain upon ecological balance and that, in turn, leads to several inhospitable conditions like rise in temperature, acid rain, excessive hot or cold, uneven monsoon and many unnatural events. The earth has already produced enough for sustenance of all living creatures in the world which, according to Mahatma Gandhi, satisfies "every man's need, not every man's greed." All organisms in the natural environment are dependent on one another and each, in turn, depends on the physical environment of the area in which it lives. There is a perfect balance or equilibrium between various organisms in the biosphere- a relatively narrow belt of living organisms a little above and below the surface of the land- known as ecological balance. In this situation, the relative numbers of organisms in a particular environment remain constant, so says a great scholar E. P. Odum. When this balance disturbs either due to changes in the physical environment viz. land, water and air caused by unrestrained pollution or exploitation of natural resources or due to changes in the relative numbers of organisms in the biosphere, a new balance is then created by the nature after witnessing a huge loss of lives of certain organisms.

In fact, resources produced by the nature are for all generations to come; they are not meant for any particular generation. Every generation has, therefore, to use them only to the extent necessary to live with satisfaction and comfort. In fact,



happiness and well-being which are ultimate goals of mankind presuppose harmony with nature and restraint in consumption. It is here that we have failed miserably. In the pursuit of happiness and consumption we have forgotten ourselves, our creativity and also what we owe to the nature. And the present consumer culture of the West, based upon the philosophy of cut-throat competition and unlimited acquisition has turned man as a machine devoid of his essential attributes called "humanism." As a consequence, large scale environmental problems have made life untenable for human beings. Air pollution, water pollution, shortage of drinking water, land degradation, deforestation and mismanagement of wastes etc. are damaging the natural resources thereby putting the very survival of the human race at stake. Hence there is an urgent need to make an all-round concerted effort to immediately check environmental degradation ensuring the safety, survival and well-being of mankind.

This article is concerned about exploring the nexus between climate change, energy security and sustainable development having contextual specificities of environmental concerns which have been affecting the South Asian countries in a considerable manner for long, thereby letting to crop up various chronic problems as detailed in the body of this article. Further, while describing climate change, energy security and sustainable development individually, the article discusses the mutual interplay between climate change and energy security with that of sustainable development respectively. Lastly it concludes by emphasizing upon the required change in the approach of SAARC which as a forum of regional cooperation must help in evolving a more realistic and workable policies aimed at harmonizing the natural resources' extraction process with that of investment direction and orienting the required technological-institutional change and policy reforms in such a manner so as to establish a perfect harmony with nature, thereby enhancing both current and future potentials to meet all human requirements and their well-being and also the efforts of sustainable development in South Asia.

Challenges in South Asia:

The South Asian region, as against other regions of Europe and America, is characterised by chronic

problems of poverty, illiteracy, immobility, population explosion pressure, unhygienic conditions of living, underdevelopment, self-oriented and corrupt political leadership and bureaucracy, feudal-monarchic politico-social system which prevents wider participation of common people in framing of governmental policies and decisions regarding overall development. Above all, the environmental problems in this region have made life unworthy of living for a huge population of around 2 billion people, almost one-fifth of the human race. This is caused by several factors like industrialisation, deforestation and spreading land salinity, population explosion and urbanisation, mad race for science and technology with-out having proper system of their application and disposal of wastes, rising carbon emission and consequent temperature hike and acid rain resulting into climate change etc.. As there has been no effective mechanism and no pollution control culture, involving people's participation and community awareness programmes, which is available in the advanced Western countries, this region has seriously suffered its ecological-balance and without adopting eco-friendly technologies during half a century past, it remains far behind in meeting the standard parameters of the United Nations and other international and global monitoring bodies particularly as regards adverse climate changes.

Climate Change:

In fact, climate change is a serious and urgent issue. And changing climate upon earth is now an established fact which is based upon scientific consensus that human activities have not only contributed to it significantly, but that change is far more rapid and dangerous than thought earlier, according to Intergovernmental Panel on Climate Change (IPCC, 2007). The global mean temperature of the earth is rising; it has risen by 0.7°C in the 20th century, and continues on an upward trend. This has already begun to impose costs (e.g., in the form of heat waves, frequency of extreme events, and recession of glaciers), but these are still within the bounds of common experience. However, further temperature increases contain the potential of much larger and even catastrophic impacts. There is close to a scientific consensus over the threshold of the so-called 2-degree line, namely an increase of 2°C above pre-industrial levels, beyond which catastrophic change



is highly probable. Successive assessments by the Intergovernmental Panel on Climate Change (IPCC) have increased the confidence in the evidence as well as the theory. The danger is that the mutually reinforcing effects of global warming may take the world to a temperature increase of 3°C or higher, with potentially severe consequences. Consider only the item in the last row of the diagram, "Onset of the irreversible melting of the Greenland Ice Sheet". The arrow starts at about 1.5°C, changes to orange at 2°C, and is red by the time it reaches 3°C. The implications of such a melting are enormous, including potentially a 7 metre rise in sea level (see Baer 2007). Even though on this issue, as well as on some other projected impacts of climate change, discussions are ongoing about their probability, the events that they relate to are clearly of a magnitude that avoiding them is vital. While climate change results from activities all over the globe (with rather unevenly spread contributions to it), it may lead to very different impacts in different countries, depending on local/regional environmental conditions and on differences in vulnerability to climate change—Independent of the contributions to climate change of these countries. It is likely to undermine the sustainability of livelihoods as well as development. The worst impacts will fall on poor and developing countries, particularly the Third World, which despite having enough natural resources are condemned to suffer because of their geographical location, poor infrastructural facilities, highly vulnerable social, economic and political setup together, paving way for weak capacities of coping with emerging challenges. Though the natural resources are treated as 'common fund' of mankind, but they have been used in an unequal manner causing uneven growth pattern in the world, and that causes adverse impact on each constituent of the environment. The developing countries of Africa, Asia & Latin America known as 'Third World' have been the worst sufferer of the environmental degradation caused by the industrial revolution and consequent imperialist policies adopted by the West as regards extraction and utilisation of natural resources for commercial purposes. Thus excessive and unrestrained extraction and wastage of natural resources will inevitably lead to imbalance in nature thereby causing change in climates as well as in seasons and also in uninterrupted supply of various

sources of energy for generations to come, known as energy security.

Energy Security:

As all developmental activities essentially require energy for their operational sustenance, therefore uninterrupted supply of energy is the prerequisite for future sustainable development. But, at the same time, the development process must ensure that while energy is used for the present requirement, enough ought to be left for future generations to come, in whatever way possible. Hence, the term energy security essentially encompasses an idea of energy replenishment because without that there will obviously be a crisis of energy. The International Energy Agency (IEA) defines energy security as "the uninterrupted availability of energy sources at an affordable price". Energy security has many dimensions: long-term energy security mainly deals with timely investments to supply energy in line with economic developments and sustainable environmental needs. Short-term energy security focuses on the ability of the energy system to react promptly to sudden changes within the supply-demand balance. Lack of energy security is thus linked to the negative economic and social impacts of either physical unavailability of energy, or prices that are not competitive or are overly volatile. This legacy has been a major factor of ecological degradation in the South Asian region along with no legal liability for indirect damage to the environment and poverty. In fact, there are certain persistent environmental problems in this region which require immediate attention for sustainable development and human well-being.

Sustainable Development:

The term 'Sustainable Development' has various meanings when interpreted from various dimensions of environment, ecology, economics, technology and sociology, cultural and political aspects. The term sustainability would encompass a number of aspects - for business it would mean sustainability of profits and for environment it would mean sustainability of natural resources which can be used by the future generations or has regenerative value. The most pertinent definition is given by Brundtland Report "*Sustainable Development is the development that meets the needs of the present without*



compromising the ability of future generations to meet their own needs". The following lines of former Prime Minister Late Indira Gandhi, aptly explain the dilemma of all the developing countries. While addressing the United Nations Conference on the Human Environment, at Stockholm in 1972, she said:*...there are grave misgivings that the discussion on ecology may be designed to distract attention from the problems of war and poverty. We have to prove to the disinherited majority of the world that ecology and conservation will not work against their interest but will bring an improvement in their lives.* In the context of South Asia, where majority of people lie at the bottom of the pyramid living on less than one dollar per day subsistence and are not able to meet their basic needs, the challenge is far more serious than that of other regions in the world. These hapless lots are deprived of food, education, safe drinking water, lack basic health and medical facilities, devoid of hygiene and sanitation, are chronically inflicted with the disease of poverty, and suffer regularly from malnutrition and maternal and child death. Indeed, the evils of poverty and a degraded environment are closely interrelated and produce cascading effects, particularly where people depend on natural resources of their immediate environment for their livelihoods and sustenance (S. Bahuguna). The notion of Sustainable Development has especially been in India since times immemorial where great philosopher turned gods, philosopher-poet and social activist and leaders like Mahavir, Buddha, Tagore, Mahatma Gandhi, Sunder Lal Bahuguna, and Vandana Shiva etc., to name a few, all believed in the concept of maintaining a healthy and close relationship with Mother Nature. India strongly believes in the Oriental philosophy of being friendly with nature and adores it as a god. India firmly holds that natural resources are the most valuable wealth of humanity and they ought to be used in the spirit of *sharing and caring*. The Constitution of India embodies in itself a greater national commitment to preserve and protect the environment. The Constitution mandates the State to "endeavor to protect and improve the environment and to safeguard forests and wild life of the country." Since the liberalization of economic policy of India during 1990s era of intense globalization all across the world, India has moved forward from a closely regulated economy to a more open economy in terms of better access to

goods and services and similar has been the continuing endeavour of almost all other countries in the South Asian region because they too cannot ignore their individual economic constraints and remain behind in the global race towards development and prosperity in the present age of liberalization of economy and globalization of markets thriving upon amazing computer and satellite based information and communication technology. Though few countries of the region like Pakistan, Afghanistan, Bangladesh and even Nepal have been undergoing grave internal turmoil and social fissures due to their involvement in terrorism and Maoism and even fratricidal wars, but despite these shortcomings, their economic growth is not much far below from expectations. The emphasis on sustainability has gained momentum as the region has been brought to crossroads wherein it needs to make a trade-off between the urge for development and to protect the environment from irreparable damage with individual as well as collective effort in the spirit of SAARC. As India is a dominant country in the region having a peninsular size and vast land mass and with reasonably strong economy and huge technical and skilled manpower and also a powerful army capable to counter any challenge from any corner, it has, obviously, become a role model for the rest of the members of the region.

Energy & Sustainable Development:

India's energy and economic development has a cause and effect relationship. With India being a developing economy there has been strong external pressures for sacrificing economic growth for the sake of protecting environment for the coming generations. But India needs to keep up the pace of economic growth to ensure better prospects of its millions of poor masses. Its initial five year plans mostly focused on the urban development as a result of which there has been no equitable distribution of wealth across the urban and rural or across the rich and the poor. Of late it has veered towards the inclusive growth of the neglected and marginalized sections of society which is being observed in Sri Lanka, Bangladesh, Myanmar, Nepal and Bhutan with minor modifications considering specific local requirements. India needs economic growth and development to free itself from the evil clutches of poverty and hunger and that is also being pursued by the other countries of the region. To ensure the desired rate of growth of the economy



it also needs adequate energy either indigenously or by means of import. This entails that in order to maintain the required economic growth if India would have to exploit the natural resources in the form of coal, hydro, gas nuclear, and wind, the same would also be followed by other energy deficient countries of the region. Fortunately few countries of the region like Pakistan and Bhutan have surplus electric power and that they can share with energy deficient countries like India, Bangladesh and Afghanistan, so as to maintain the regional pool of energy security in South Asia. But the real challenge is that how can they harness their natural resources so as to fulfill their energy needs and, at the same time, make that sustainable for future generations? Majority of the natives in the region still use traditional fuels such as cow-dung, agricultural wastes, and firewood as cooking fuel, instead of convenient and clean LPG or electric power.

Energy security in India:

As regards energy security in India its Integrated Energy Policy Report 2008 lays stress on the energy security aspects as well diversification of its fuel mix coupled with indigenous use of resources to meet its energy challenges and also to raise its level of human development. "India faces formidable challenges in meeting its energy needs and in providing adequate energy of desired quality in various forms in a sustainable manner at competitive prices. India needs to sustain an 8% to 10% economic growth rate, over next 25 years, if it is to eradicate poverty and meet its human development goals". Obviously, the other regional countries need to achieve an economic growth rate sufficiently higher than that of India in order to maintain a relative parity with India. In order to deliver a sustained growth of 8% through 2031, India would at least need to grow its primary energy supply by 3 to 4 times whereas the electricity supply needs to grow at the rate of 5 to 7 times the present consumption. In the real national context, the issue of sustainability is larger compared to OECD countries as the region has to address the basic needs of is teeming billions both for today as well as tomorrow. Hence, environmental taxes, green taxes, carbon taxes, and subsidies etc. needs to be levied so as to affect choices of end users. India can have differential taxes if they can appropriately reflect environmental externalities and that can also be useful

for all countries of the region as that will also ensure protection of environment in their respective areas. "A consistent application of the *polluter pays* principle or *consumer pays* principle should be made to attain environmental objectives at least cost where prescribed environmental norms are either not applied consistently or not being adhered to." Industries are energy intensive and by simply increasing the energy efficiency by use of technology is important for ensuring its energy security and abatement of pollution. To meet the demand for energy, India has to depend largely upon coal. Coal today accounts for 50% of India's commercial energy consumption and around 78% of the domestic coal production is dedicated to power generation. Coal shall remain the most dominant energy source till 2031-32 and possibly beyond. Coal for instance, will dominate India's energy basket in terms of catering to its present and future needs considering the volatility of crude oil both in terms of price and supply disruptions. By the end of the 15th Plan (Year 2032), India's coal power capacity has to increase to at least 400GW as planned. This would need almost 900 more 500 MW sized plants. The incremental cost alone would be \$104 - 159 billion (around INR 5.55-7.98 trillion), depending on the technology chosen, with annualized investments in the range of \$4-8 billion (Arunabha Ghosh). According to World Academy of Science, Engineering and Technology 54 2009 130 Hydro has a potential of 150,000 MW in India. Though the contribution to the overall energy requirement is small, its flexibility and suitability to a peak power potential makes it very valuable. But along with the exploitation of hydro potential arise the environmental concerns and the problems of resettlement and rehabilitation of project affected people, particularly in India, Nepal and Myanmar, the issue of resettlement and rehabilitation has often caused great amount of social and political agitation and needs to be handled in a better way to avoid future public outbursts. Further, nuclear energy too offers India a powerful means for long term national security including energy security and that propels Pakistan to follow the suit. It needs to develop its thorium cycle for nuclear power. Fortunately, India and USA recently had already signed a historic nuclear deal in 2008 and that would help India in removing the hurdles that it faced earlier in procuring nuclear fuel and technology in the future. This would be quite fruitful from India's perspective



as this will enable India to build more nuclear plants to meet its future energy needs. This would also enable India to lessen its dependence on oil and gas purchased from external sources.

In cases such as the international oil market, where prices are allowed to adjust in response to changes in supply and demand, the risk of physical unavailability is limited to extreme events. Supply security concerns are primarily related to the economic damage caused by extreme price spikes. The concern for physical unavailability of supply is more prevalent in energy markets where transmission systems must be kept in constant balance, such as electricity and, to some extent, natural gas. This is particularly the case in instances where there are capacity constraints or where prices are not able to work as an adjustment mechanism to balance supply and demand in the short term. Ensuring energy security has been at the focus of the mission of the IEA since its inception. The ability to respond collectively in the case of a serious oil supply disruption with short-term emergency response measures remains one of the core activities of the IEA. The long-term aspect of energy security was also included in the Agency's founding objectives, which called for promoting alternative energy sources in order to reduce oil import dependency. The IEA continues to work to improve energy security over the longer term by promoting energy policies that encourage diversification, both of energy types and supply sources, and that facilitate better functioning and more integrated energy markets, besides offering many options for ensuring better environmental conditions marked by sustainability and lesser adverse climatic changes.

Climate Change and Sustainable Development: A comprehensive menu of options for preventing adverse changes in climate will include these conventional policy instruments in addition to ones that allow for some flexibility in meeting agreed targets of emission control. However, the kind of accelerated establishment of emission rights, as envisaged under the Kyoto regime, might not be the most effective way of proceeding ahead with a view to check increasing carbon concentration in the environment and consequent rise in temperature of the climate with likely fear of acid rain. However, environment friendly technological innovations for

meeting the agreed targets of carbon emission must be encouraged by an unequivocal policy formulation. The current compromise with rich western countries is to opt for "painless" policies that induce some action and learning, in the expectation that future policies would reward actors who are most alacritous to initiate these actions. However, as Jeffrey Frankel (2006) has argued recently, such a reversal of policy commitment is highly problematic. For one thing, democratic governments cannot bind their successors, and therefore any policy that involves a future commitment by a successor regime is likely to be viewed as risky by the current business community and such citizenry in a country. Thus, regardless of the approach adopted, it is quite clear that any policy inconsistency and shocks are far more debilitating to the growth momentum than static costs *per se*. The key question for policy makers is how to ensure that policy decisions will remain stable and consistent over a considerable period of time during which though incumbent governments will be replaced by their successors but earlier policy decisions will remain effective for restraining environmental degradation and adverse climate change for ensuring a happy and meaningful life for all in a pure, clean, healthy and life-sustaining environment.

Conclusion:

Thus the issue of climate change and energy security has its indelible impact upon sustainable development in South Asia where important areas of deprivation are educational and healthcare facilities, access to safe drinking water, good nourishment of children particularly girl child and gender discrimination, proper sanitation, right to information and also energy security etc., which need to be addressed while protecting the environment and ecological balance of the region. A very pertinent reference in this context should adhere to one of the eight 'millennium development goals' regarding 'Environmental sustainability', as set by World Commission on Environment and Development. Its aim was to integrate sustainable development into national policies and reverse loss of natural resources, halve the proportion of people without access to potable water and significant improvement in the lives of at least 100 million slum dwellers (World Bank 2004). It would also require a process of change in the approach of the SAARC forum in which the exploitation of resources, the



direction of investments, the orientation of technological and institutional change and policy reforms are in harmony with nature and enhance both current and future potential to meet human requirements and aspirations and ensure their well-being. With people becoming more and more aware of the relevance of environmental issues and increasing demand for a cleaner environment, environmental economics is fast becoming a topic of common interest for all individuals as well as nations. In order to meet the developmental needs on a sustainable basis, it is imperative to use the natural resources very wisely. The polluter pays principle must be applied in the region. Hence, eradication of poverty, illiteracy, women's contribution, exchange of indigenous capacity including new innovative environment friendly technologies and people's participation and their awareness towards nature and its ecology need immediate attention. Last but not the least the Nature is a common treasure of humanity and be consumed according to the spirit of '*sharing and caring*' and enough ought to be left for future generations while not forgetting '*nothing is beyond human endeavour*'.

References:

- Agarwal Anil, and Sunita Narain (1991), *Global Warming in an Unequal World: A Case of Environmental Colonialism*. New Delhi: Centre for Science and Environment.
- Agarwal Anil, S. Narain, A. Sharma, and A. Imchen (2001), *Poles Apart: Global Environmental Negotiations 2*. New Delhi: Centre for Science and Environment.
- Arstein, S. (1971), *Citizen Participation Effecting Community and Change* . in E S Cahn and BA Passet (eds.), Praeger Publication, New York.
- Athanasiou, Thomas (2007), The Inconvenient Truth, Part II, An Eco Equity Discussion Paper www.ecoequity.org/docs/InconvenientTruth2.pdf
- Baer, Paul (2007), The Worth of an Ice Sheet, An Eco-Equity Discussion Paper: A critique of the treatment of catastrophic impacts in the Stern Review, www.ecoequity.org/docs/WorthOfAnIceSheet.pdf
- Bahuguna, Sunder Lal, *Sustainable Development in India: Perspectives*. www.envfornic.in
- Batta, R. N. and J. P. Bhathi (2001), 'Environmental Policy in Developing Countries: Some Fundamental Issues,' *Man and Development*, December.
- Bierbaum and others (2007), *Confronting Climate Change: Avoiding the Unmanageable and Managing the Unavoidable*, a new report prepared by the Scientific Expert Group Report on Climate Change and Sustainable Development for the United Nations Department of Economic and Social Affairs.
- Bouwer L. M. et al (2004), Adaptation and Funding in Climate Change Policies, InKok and de Coninck, 2004: 173-201
- Brown V., D. I. Smith, R. Wiseman and J. Handmer (1995), Risks and Opportunities: Managing Environmental Conflict and Change, Earthscan Publications, London.
- Cornia, Giovanni, Richard Jolly, and Frances Stewart (1987), *Adjustment with a Human Face: Protecting the Vulnerable and Promoting Growth*. Oxford: Clarendon Press.
- Diamond, Jared (2005), *Collapse: How Societies Choose to Fail or Survive*. London: Penguin Books.
- DPCS (Department for Policy Coordination and Sustainable Development) (1997), *Critical Trends: Global Change and Sustainable Development*. United Nations, New York.
- Easterly, William (2003), *The Elusive Quest for Growth: Economist's Misadventures in the Tropics*. Cambridge, MA: MIT Press.
- Ehrhardt-Martinez, K., E. M. Crenshaw, and J. C. Jenkins (2002), Deforestation and the Environmental Kuznets Curve: A Cross-National Investigation of Intervening Mechanisms, *Social Science Quarterly* 83 (1): 226-243.
- FAO (2000), *Global Forest Resources Assessment 2000*. Rome: FAO.
- Frankel, Jeffrey (2006), Formulas for Quantitative Emission Targets, In *Architectures for Agreement: Addressing Global Climate Change in a Post Kyoto World*.
- Glasson J. R. Therivel and A. Chadwick (1994), *Introduction to Environmental Impact Assessment Principles and Procedures Process: Practice and Prospects*. Research Press, New Delhi.
- Ghosh, Sajal (2002), Electricity Consumption and Economic Growth, Paper published by Elsevier Energy Policy.
- Ghosh, Arunabha (2009), Competing needs: Clean coal is key, Article published in *Mint* Newspaper-April 28.
- Gupta, J. (1997), *The Climate Change Convention and Developing Countries: From Conflict to Consensus?* Boston-London: Kluwer Academic Publications.
- Heemst, J. van, and V. Bayangos (2004), Poverty and Climate Change. In: Kok M.T.J. and H.C. de Coninck, 2004: 21-52.
- Integrated Energy Policy, 2008, Report by, Planning Commission, Govt. of India.
- IPCC (2001), *Synthesis Report, Third Assessment, Working Group III, Summary for Policymakers*. Paris: IPCC, WMO.
- IPCC (2007), *Climate Change 2007: The Physical Science Basis: Summary for Policy Makers*. Paris: IPCC, WMO.
- Jain, R. K., L. U Urban and G S Stacey (1981), *Environmental Impact Analysis: A New Dimension in Decision-Making*. (2nd edn.), Linton Educational Press, New York.
- Jepma, C. and W. van der Gaast (1999), *On the compatibility of flexible instruments*. Boston/London: Kluwer Ac Publications.
- Jha, U. C. (2004), Environmental Issues and SAARC, *Economic & Political Weekly*, April, 24, Mumbai, PP. 1666-71.
- Joshi, V. K. (2003), For Poison in the water, *Down to Earth*, Sep. 30, P.56.
- Kok, M. T. J. and H. C. de Coninck (2004), *Beyond Climate: options for broadening climate policy*. Bilthoven, NL: RIVM (State Institute for Environmental Hygiene), Report 500019001/2004.
- Kumar Anand (2003), 'Interlinking Rivers in India', *Down to Earth*, Sep. 30 P.53.
- Lohmann, L. (ed.) (2006), Carbon Trading: a critical conversation on climate change, privatization and power, *Development Dialogue*, 48, Sept. 2006.
- Melnick, D., and others (2004), *Environment and Human Wellbeing: a practical strategy (summary version)*, UN Millennium Project, Task Force on Environmental Sustainability, 2005.
- Michaelowa, A. and M. Dutschke (2000), *Climate Policy and Development: Flexible Instruments and Developing Countries*. Cheltenham, UK: Edward Elgar.
- Mody, B. (1991), Designing Messages for Developmental Communication: An Audience Participation Based Approach, Sage Publications, New Delhi.
- Munasinghe, M. (1999), Development, Equity and Sustainability (DES) in the Context of Climate Change. In: Munasinghe and Swart 1999: 13-67.
- Munasinghe, M., and R. Swart (1999), Climate Change and its Linkage with Development, Equity and Sustainability. Proceedings of the IPCC Expert Meeting, Colombo, 27-29 April 1999. Paris: IPCC, WMO.
- Nayak, Kunju-Bihari (2008), *Sustainable Development (An Alternative Approach in Rabindranath Tagore's Vision*. New Delhi: Serials Publication.
- Nordhaus, William (2006), The Stern Review on the Economics of Climate Change, November 17, 2006, <http://nordhaus.econ.yale.edu/SternReviewD2.pdf>
- Pacala, S., and R. Socolow (2004), Stabilization wedges: Solving the climate problem for the next 50 years with current technologies, *Science*, 305, 968-972.
- Richardson, M. J. and Sherman, M. Gismondi (1993): Winning Back the Words: Confronting Experts in an Environmental Public Hearing, Garamond Press, Toronto.
- Robinson, J. and others (2006), Climate Change and Sustainable Development: Realizing the Opportunity. *Ambio* 35 (1): 2-9.
- SAARC (2004), 'Agree to Free Trade', *The Hindustan Times*, New Delhi, January 3.
- Sinclair, J and A. Diduck (2002), 'Public Involvement in EA in Canada: A Transformative Learning Perspective,' *E.I.A. Review*, Vol. 21.
- Stolp A., W. Giesen and F. Van Clay (2002), 'Citizens Values Assessment: Incorporating Citizens Value Judgments in EIA,' Impact Assessment & Project Appraisal, Vol. 20 (1).
- Stroker, G. (1997), 'Hearing but not Listening: The Local Government Review Process,' *Public Administration*, 75 (1): 35-48.
- Stern, N., et al (2006), *The Economics of Climate Change*, http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm
- The Energy Conservation Act 2001, Ministry of Law, Justice and Company Affairs, Govt. of India.
- The World Commission on Environment and Development (1987), *Our Common Future*, OUP, New York.
- Tol, Richard (2006), The Stern Review of the Economics of Climate Change: A Comment, November 2, 2006, <http://www.fnu.zmaw.de/fileadmin/fnu-files/reports/sternreview.pdf>
- UNEP: Earthscan (2002), *Global Environmental Outlook 3*. London: Earthscan.
- United Nations Environment Programme (1996), Environment Impact Training Manual, Preliminary version UNEP.
- Upadhyay, V. (2004), National Environment Policy 2004, E.P.W. Mumbai, Sep. 25, PP. 4306-4308.
- Yohé, Gary (2006), Some thoughts on the damage estimates presented in the Stern Review: An Editorial, *The Integrated Assessment Journal*, 6 (2): 65-72.
- World Development Report (2004), Making Services Work for Poor People, *The World Bank Report*, P.2.



Population Growth and Climate Change: Need for an International Law

Dr. Alok Kumar Gupta

The paradigm of security concerns have been ever changing. Security is now seen more in terms of global or human security, with both horizontal and vertical extensions. The horizontal extension includes a larger set of problems, such as poverty, epidemics, political injustice, natural disasters, crime, social discrimination, environmental degradation, climate change and unemployment. The vertical extension includes the expansion of the traditional object of security policy to above and below the level of the nation-state.¹ This enlargement of the domain of security policy in turn calls for qualitatively different approaches. First are the methods of "cooperative security" to regulate military expenditure and to reduce the residual threat of interstate conflict so as to free up resources for more pressing social problems. Second are the methods of 'collective security', mechanisms that strengthen the capacity for preventive diplomacy. If this fails, the third method is that of UN-sanctioned peace enforcement and peace-building operations for dealing with large-scale civil strife.

There are, besides, various global public policy regimes that commit states and non-governmental actors to commonly accepted behavioural norms and rules, particularly in the areas of environmental conservation and resource exploitation. More ambitious schemes call for global disarmament and massive aid and development programmes to address poverty, overpopulation, underdevelopment, disease and now environment. Therefore, the paradigm has been changing from traditional security to non-traditional security i.e. human security. However, in the contemporary world the 'human security' seems to have turned a threat to human beings themselves. It means that growing concern about security to the life of individual and human beings in general has led to a situation where it has become a threat to mankind itself. Reason being that increasing population on Earth is one of the greatest threats to mankind for various reasons.

Climate change which is being considered as a threat and challenge to global and human security is the effect of growing population owing to growing concern about human security.

Today, planet Earth is sick on several counts and is fast becoming a threat to human survival, security and existence. Not only its atmosphere, Oceans, rivers, lakes, canals, other water bodies and land-based resources, stands polluted but also the food that we eat and everything that we draw from the nature for our survival and well-being stands mutated and grossly changed in terms of its taste, vitamin and mineral contents as well as its values. Consequences are writ large all over the species of human beings, animals and nature that we are a witness to and their quality. Scientists are busy in disputing the calculation and miscalculations of global temperature-rise and depletion of environment; political leaders of nation-states of the world are busy in shifting the blame of polluting the environment and onus of carbon-reductions over each other; non-governmental organizations are playing into the hands of governments of major powers; multilateral organizations have become toothless tigers and have been involved in meeting and producing tons of documents to arrest the climate change; international laws have been reduced to positive morality upon states i.e. they may render their obedience out of their own moral considerations and not because it has a deterrent effect.

The cause of environmental degradation and climate change is being explored in indiscriminate use of nature and natural resources; whereas the real cause lies somewhere else. One need to understand what has perpetuated the overuse of natural resources and its fast depletion? Therefore, the challenge before the world community is first to comprehend the real cause of the problem and then evolve a multipronged strategy. Fact remains that there is something wrong with the environment and the climate for which the



calculations or miscalculations of scientists are superfluous. The misbehaviour of nature with its species in different parts of the world in the form of cyclone, typhoon, earthquake, floods, forest-fire, and various other disasters are enough to understand the wrongs committed by mankind in its use of the bounties of nature. The natural disasters are no more natural or they cease to be natural, as they carry the footprints of human beings interference with the nature and ecological balance; hence are directly or indirectly man-made disasters. The term 'use' and 'misuse', of nature and natural resources requires to be replaced with 'over-use' and 'indiscriminate use' as the real cause of the problem. However, the question that arises here as stated above is what has led to or necessitated over-use or indiscriminate use of environment?

The author strongly feels that it is the ruthless growth of population that has led to over-use of the nature and natural resources which is the root cause of all evils that our environment suffers from in the present time. It is over-use that has created tremendous pressure on the environment with consequent climate change. Therefore, this paper attempts to explore the relationship between 'population-growth' and 'environmental degradation' as well as 'climate change'. Subsequently, it makes it imperative that a multi-pronged strategy is needed with a broad-based international law *inter alia* to discipline the nation-states majorly on two fronts: first to contain their population growth; and second to reduce their carbon emission. International community has been able to evolve a legal instrument for the latter i.e. for arresting the climate change at COP21. However, it will deliver only when the global community is able to evolve an International Legal Instrument to arrest the indiscriminate population growth.

Global Population Growth—Trends and Tensions:

Growing population is an indicator of growing pressure on available resources on planet Earth. The estimates of population may slightly vary from source to source, yet the trends are suggestive enough of the fact that the population has gone up by leaps and bounds all over the globe. According to United Nations Population Fund (UNFPA), it took hundreds of thousands of years

for the world population to grow to one billion—then in just another 200 years or so, it grew sevenfold. In 2011, the global population reached the Seven (7) billion mark, and today, it stands at about 7.3 billion.² According to UNFPA this dramatic growth has been driven largely by increasing numbers of people surviving to reproductive age, and has been accompanied by major changes in fertility rates, increasing urbanization and accelerating migration. These trends will have far reaching implications for generations to come.

According to yet another source, world population grew to 7.06 billion in mid-2012 after having passed the 7 billion mark in 2011. Developing countries accounted for 97 percent of this growth because of the dual effects of high birth rates and young populations. Conversely, in the developed countries the annual number of births barely exceeds deaths because of low birth rates and much older populations.³ Author of the report further claims that by 2025, it is likely that deaths will exceed births in the developed countries, the first time this will have happened in history. While virtually all future population growth will be in developing countries, the poorest of these countries will see the greatest percentage increase. As defined by the United Nations, these 48 countries have especially low incomes, high economic vulnerability, and poor human development indicators such as low levels of education. Of these countries, 33 are in sub-Saharan Africa, such as Burundi, Ethiopia, Mozambique, and Zambia; 14 in Asia, including Bangladesh, Cambodia, Nepal, and Yemen; and one in Caribbean, Haiti. They are growing at 2.4 percent per year and are projected to reach at least 2 billion by 2050.⁴ The report thus suggests that population growth is more in developing countries than in developed countries. Such a population growth trend suggests that there will be an ever increasing pressure on fast depleting and shrinking natural resources than has been available on planet Earth. Depleting resources shall not only disturb the ecological balance on the Earth but would also lead to environmental degradation and consequent climate change.

However, there is also a counter opinion to this above stated view. According to Max Roser, after the world population increased more than 400% over



the 20th century, population growth has slowed considerably. Over the course of the 21st century, world population will likely only rise by 50% and reach around 11 billion by 2100. Peak world population growth rate was already reached in the late 1960s, and it has been falling since.⁵ Therefore, according to this view one may argue that a declining trend in population growth suggests that the indiscriminate population growth has been arrested and that the increasing pressure on the Earth's resources shall be contained in due course. Has it been so the world community would not have been so fussy and concerned about the climate change. Intergovernmental Panel on Climate Change may not have been breaking their head to calculate the temperature rise and consequent global warming. There is hardly any doubt that population is directly proportional to shrinking resources on Earth and the need for more resources on the one hand and increased over-use of resources on the other has led to temperature rise and necessitating climate change.

Another source reveals that globally, recent research indicates that assumptions regarding declining fertility rates used by the Intergovernmental Panel on Climate Change to develop future emissions scenarios may be overly optimistic. While fertility rates have generally declined over the past few decades, progress has slowed in recent years, especially in developing nations, largely due to cutbacks in family planning assistance and political interference from the United States. And even if fertility rates are reduced to below replacement levels, population levels will continue to climb steeply for some time as people live longer and billions of young people mature and proceed through their reproductive years. Per-capita greenhouse gas emission may drop, but the population bulge will continue to contribute to a dangerous increase in greenhouse gases in the atmosphere.⁶ This argument stands supported by the fact of the invisible concern about the trends of population growth and consequent pressure on Earth's available resource as well as climate change from the international media; both print as well as electronic. Only certain multilateral organizations and individual population scientists have been researching and writing about it. Media at global level as well as at national levels in different countries have grossly failed to take-up the debate and discussion in an aggressive manner.

Whatever may be the volume of debate over the issue of population growth of the world; fact remains that the contemporary Earth possesses far more number of people than it can really sustain under normal circumstances. More population means more use of resources and more use of resources means more emission of harmful gaseous and other substances into the atmosphere. Therefore, growth of population has necessitated research regarding its impact on environment and climate change, so that adequate measures may be evolved to arrest the same.

Population Growth and Over-Use of Natural Resources:

According to Global Footprint Network data humanity uses the equivalent of 1.6 planet Earths to provide the renewable resources we use and absorb our waste.⁷ If all 7+ billion of us were to enjoy a European standard of living—which is about half the consumption of the average American, the Earth could sustainably support only about 2 billion people. Therefore, what is crucial to understand is that the longer we continue consuming more resources than the Earth can sustainably provide, the less able the Earth can meet our resource needs in future and the fewer people it can support in the long term. This also suggests that the total population is already three and a half times more than the available resources on Earth can sustain. Evidence of unsustainable resource use is all around us. Global aquifers are being pumped 3.5 times faster than rainfall can naturally recharge them.⁸ Eventually they will run dry and hundreds of millions will suffer. Topsoil is being lost 10 to 40 times faster than it is formed.⁹ Feeding all 7+ billion of us will become increasingly difficult. Oceans are being overfished, and a primary protein source for over 2 billion people is in jeopardy.¹⁰ Worldwide, we have lost half the vertebrate species in the air, water, and land since 1970.¹¹ This speaks volume about the over-use of resources on account of population growth.

It is important to note that the depletion of non-renewable resources such as fossil fuels, metals, and minerals that make a European standard of living possible is not included in Global Footprint Network data. This includes all the tons of oil, coal, iron ore, copper, and hundreds of other minerals and metals



that make modern life possible. Taking these non-renewable resources into account suggests two billion people living at a European standard of living may be the upper limit of a sustainable global population.¹² Therefore, moderate UN scenarios suggest that if current population and consumption trends continue, by the 2030s, we will need the equivalent of two Earths to support us. Turning resources into waste faster than waste can be turned back into resources puts us in global ecological overshoot, depleting the very resources on which human life and biodiversity depend.

Earth Overshoot Day:

Earth overshoot day is the day on the calendar when humanity has used up the resources that it takes the planet the full year to regenerate. Every year Global Footprint Network raises awareness about global ecological overshoot with our Earth Overshoot Day campaign, which attracts media attention around the world. Earth Overshoot Day has moved from early October in 2000 to August 13 in 2015. The result is collapsing fisheries, diminishing forest cover, depletion of fresh water systems, and the build-up of carbon dioxide emissions, which creates problems like global climate change. These are just a few of the most noticeable effects of overshoot. Overshoot also contributes to resource conflicts and wars, mass migrations, famine, disease and other human tragedies—and tends to have a disproportionate impact on the poor, who cannot buy their way out of the problem by getting resources from somewhere else.¹³ Therefore, it makes it quite obvious that growing population is becoming consequential for sustainability and quality of the Earth on the one hand and environmental degradation on the other.

Linkages between Population and Climate Change:

Rapid population growth and fossil fuel emission are two leading characteristics of modern age. Since the year 1800, world population has grown seven-fold, while per capita carbon dioxide emissions have increased 150 times.¹⁴ One can only imagine the rate of impact for every single addition to the population on the Earth. Climate change will only add to the strain on the planet's ability to support all 7+ billion of people. Climate scientists are warning us to expect lower crop yields of major grains such as wheat, rice,

and maize.¹⁵ Rising sea levels could create hundreds of millions of climate refugees. Climate disruption is likely to create increasing levels of resource conflict and civil unrest. Therefore, it has become obvious by now that both population growth and climate change affect each other and play the role of cause and effect in turn. According to Centre for Biological Diversity the largest single threat to the ecology and biodiversity of the planet in the decades to come will be global climate disruption due to the build-up of human-generated greenhouse gases in the atmosphere.¹⁶ People around the world are beginning to address the problem by reducing their carbon footprint through less consumption and better technology. But unsustainable human population growth can overwhelm those efforts, leading us to conclude that we not only need smaller footprints, but fewer feet. Portland, Oregon, for example, decreased its combined per-capita residential energy and car driving carbon footprint by 5 percent between 2000 and 2005. During this same period, however, its population grew by 8 percent.¹⁷ Hence, it makes it obvious that a reduction in carbon footprint requires to be matched correspondingly by proportional reductions in population growth, to maintain sustainability.

A 2009 study of the relationship between population growth and global warming determined that the 'carbon legacy' of just one child can produce 20 times more greenhouse gas than a person will save by driving a high-mileage car, recycling, using energy-deficient appliances and light bulbs, etc. Each child born in the United States will add about 9,441 metric tons of carbon dioxide to the carbon legacy of an average parent. The study concludes, "Clearly, the potential savings from reduced reproduction are huge compared to the savings that can be achieved by changes in lifestyle."¹⁸ One of the study's authors, Paul Murtaugh, warned that, "In discussion about climate change, we tend to focus on the carbon emissions of an individual over his or her lifetime. Those are important issues and it's essential that they should be considered. But an added challenge facing us is continuing population growth and increasing global consumption of resources....Future growth amplifies the consequences of people's reproductive choices today, the same way that compound interest amplifies a bank balance."¹⁹



Carbon emission undoubtedly is one of the strongest causes of climate change on planet Earth. The size of the carbon legacy is closely tied to consumption patterns. Under current conditions, a child born in the United States will be responsible for almost seven times the carbon emissions of a child born in China and 268 times the impact of a child born in Bangladesh. On the other hand, the globalization of the world economy may mask the true carbon footprint of individual nations.²⁰ According to Michael Pollan, for every calorie of food that we eat 10 calories of fossil fuel energy was used to grow it, to fertilize it, to make pesticides to use on it, and to transport it.²¹

A blame-game has been on between the developed and developing countries. Each blaming the other on different pretext: with developed countries blaming the developing countries that they are the real culprit as they have largest populations of the world; on the other hand developing countries accusing the developed countries that the high-tech and tech-savvy life style of the developed world has been responsible for increased contributions to the carbon emissions. It is consumption pattern and not consumption volume that is being claimed the real culprit for climate change. At first glance, it is hard to see how population growth in less developed nations is linked to climate change. After all, people who live in places with the lowest carbon emissions tend to have the largest families. Residents of the African nation of Chad have about six children each, yet their annual per capita carbon emissions are less than 1 percent of those of the average American. It would be unfair to blame climate change on people in less developed nations who seek the same creature comforts many of us take for granted.²² On the other hand, A 2005 London School of Economics study concluded that, if each of us living in a highly developed country reduced our carbon footprint by 40 percent over 40 years, all of that would be cancelled by our present population growth rates alone. And that doesn't even take into account the fact that emissions will rise dramatically if and when billions of people are able to escape from poverty.²³ There is hardly any doubt that luxury is directly proportional to emissions; greater the luxury greater goes the emissions into the air. On the other hand less the luxury, larger may be the population but their consumption

patterns would be such that it will not create enough impact on environment, the way developed world does. According to yet another source it becomes evident: it reveals that Americans constitute 5 percent of the world population, but consume 24 percent of the world's energy. On an average one American consumes as much energy as 2 Japanese, 6 Mexicans, 13 Chinese, 31 Indians, 128 Bangladeshis, 307 Tanzanians, and 370 Ethiopians.²⁴ Therefore, this argument is suggestive of the fact that alongside the growth of population, the consumption patterns in different states also plays a dominant role towards creating pressures on Earth's resources.

Climate change and population could be linked through adaptation (reducing vulnerability to the adverse effects of climate change) and, more controversially, through mitigation (reducing the greenhouse gases that cause climate change). The contribution of low-income, high fertility countries to global carbon emission has been negligible to date, but is increasing with the economic development that they need to reduce poverty. Rapid population growth endangers human development, provision of basic services and poverty eradication and weakens the capacity of poor communities to adapt to climate change. Significant mass migration is likely to occur in response to climate change and should be regarded as a legitimate response to the effects of climate change.

There could be another dimension in response to the above-mentioned argument. It may be that either on account of Millennium Development Goals (MDGs) or on account of efforts through policy interventions by individual states poverty ratio may not have decreased considerably but there has been a surge in the growth of middle-class population world over. It is this middle class that may be held responsible for increased use of transportation, refrigeration, air conditioners, micro-waves, and host of other household appliance along with other modes of communication and entertainments that are responsible of increased contributions to carbon emissions. According to a new research by Pew Research Group there was growth in the middle-income population from 2001 to 2011, the rise in prosperity was concentrated in certain regions of the globe, namely China, South America, and Eastern



Europe. The middle class barely expanded in India and Southeast Asia, Africa and Central America.²⁵ The study though claims that the largest increase has been in the low income population the Global Middle Income population has doubled from 2001 to 2011. The study also suggests that poverty has plunged over 2001 to 2011 with an increase in the middle income group, yet most people remain low income. According to the criteria adopted by PEW 56% of the world population remains low income in 2011 and 13% are in the middle income group. This means remaining 31 percent are in the high income group. Considering that 44 percent of the population on Earth may be held responsible for most of the carbon footprints on Earth. However, it is just indicative of the fact that there is a strong linkage between the population growth and climate change, in spite of considerable variations in consumption patterns. Therefore, putting all blames on the developed world for their consumption pattern may not be a valid argument; nevertheless it is one of the strong determinants of emissions. According to many policy analysts, linking population dynamics with climate change is a sensitive issue, but family planning programmes that respect and protect human rights can bring a remarkable range of benefits. Population dynamics have not been integrated systematically into climate change science. The contribution of population growth, migration, urbanization, ageing and household composition to mitigation and adaptation programs needs urgent investigation. Prima facie the reports are suggestive enough that population growth is directly linked to resource consumption and its subsequent depletion as Earth is unable to replenish at the rate at which it is consumed by the population. Therefore, need of the hour is to decipher the scientific linkages between the two so that adequate measures may be evolved, to check population growth both at the global level as well as national levels.

What Needs to be Done?:

Adaptation to climate disruption will be much easier with a much smaller population. We can achieve a smaller global population tomorrow by beginning a dramatic reduction in births today. The mankind on planet Earth want a viable, sustainable global home. If we allow overpopulation and overconsumption to continue, the evidence is mounting that billions will suffer and that we will leave future generations a

much harder, bleaker life. The carbon footprint of poor may be much less than that of the rich; yet population growth both in developed as well as developing world creates tremendous pressure on Earth's resources. Therefore, there is no doubt that we will have to shop, eat, and travel more intelligently on the one hand; and limit as well as reduce our population on the other. Reducing birth rates now can save the planet Earth from the likely increase in death rates that awaits the mankind if nothing is done. Solving overpopulation is essential in building a sustainable future. We need to end Earth's Overshoot. The Earth provides all that we need to live and sustain our lives. Individuals and institutions worldwide must begin to recognize ecological limits. We must begin to make ecological limits central to our decision-making and use human ingenuity to find new ways to live, within the Earth's bounds. This makes it imperative to invest in technology and infrastructure that will allow us to operate in a resource-constrained world. It means taking individual action, and creating the public demand for businesses and policy makers to participate. Using tools like the Ecological Footprints to manage our ecological assets is essential for humanity's survival and success. Knowing how much nature we have, how much we use, and who uses what is the first step, and will allow us to track our progress as we work towards our goal of sustainable, one-planet living.²⁶ It is not too late to stop runaway global warming. Economy-wide reduction of greenhouse gas emissions to a level that brings atmosphere carbon dioxide back from 386 parts per million to 350 or less, scaling back first-world consumption patterns, and long-term population reduction to ecologically sustainable levels will solve the global warming crisis and move us toward a healthier, more stable, post-fossil fuel, post-growth addicted society.²⁷ However, the world community is evolving ways and means to arrest the climate change by reducing the consumption patterns across the globe; but world community is not evolving any mechanism to arrest the population growth in most parts of the world. Therefore, pertinent question remains how can the population growth be arrested across the globe?

Imperatives for an International Law:

World community has shown enough concern for climate change and especially the global warming.



Several conferences and meetings have been organized to evolve a legal instrument to fix liability and accountability upon the nation-states of the world. COP21 or CMP11²⁸, the United Nations Climate Change Conference 2015 was held at Paris in November-December, 2015. The Conference hammered out Paris Agreement, a global agreement on the reduction of climate change. It is scheduled to enter into force once 55 countries representing 55 percent of global greenhouse emission join it. The intended international legal instrument has set an objective of achieving cuts to global greenhouse emissions to a level that climate change is limited to 2 degree Celsius compared to pre-industrial levels; with an aim to try and make effort for 1.5 degree Celsius by the end of 21st century. This must be appreciated as something worthwhile and concrete has emerged out of the long and sustained efforts of the global community. However, it will continue to be a herculean task before national governments to meet the commitment of Intended Nationally Determined Contributions (INDCs), until and unless adequate corresponding measures are not adopted for check on population growth.

The Paris Agreement on Climate Change will become meaningful and its success will get increasingly ensured if the world community prepares itself to evolve an international legal instrument for check on global population growth. Here again the same countries could adopt Intended Nationally Determined Contributions towards efforts at check on population growth. Through an international legal regime, a target must be set for all the countries of the world to adopt means and measures to put a check and control on their population growth which may be in proportion to their present population and growth rate. A check on population growth may also help towards harmonization of land population ratio and their consumption pattern. Check on population growth will also help towards establishing a balance between the available resources on Earth and the population. Nation-sates of the world are required to be made accountable and develop a sense of responsibility towards mother Earth. Accordingly, a United Nations Framework Convention for Population Control must be adopted to evolve an international legal instrument addressing the issue of indiscriminate

population growth. It is already late, hence sooner the better for sustainability of life on Earth.

Conclusion:

It's taken about 200 years of carbon emissions to create our current climate crisis. Barring miraculous technological breakthroughs, it's going to take centuries to set things right again. Therefore, need of the hour is to restrain the mankind on Earth; in their use of available resources on Earth; a check on growth of population; to develop responsible reproductive habit and become a responsible citizen in the interest of the globe. It could be made possible only through increased awareness, international legal instrument and constant monitoring.

Climate change has been described as the biggest global health threat of the 21st century. World population is being projected to reach 9.1 billion by 2050, with most of this growth in developing countries. Developed and developing world are busy in passing the buck of responsibility for protection of environment which is an irresponsible behaviour on the parts of governments across both the world. While the principal cause of climate change is high level of consumption in the developed countries, its impact will be greatest on people in the developing world, which most scientific research and organizations are forecasting. Therefore, onus for addressing the issue of climate change and the consequent crisis lies on both the developing as well as developed world. Today, more than 222 million women in developing nations would like to limit their family size, yet they are unable to do so because of a host of obstacles. Lack of information about modern contraception and cost are important factors. But the most serious barriers are often more subtle and complex. They include misinformation about side effects of birth control methods, including the false notion that they lead to sterility. Therefore, there is a need for an informed family planning. Families and couples must be promoted and motivated through incentive like employment and rewards of different types in employment. This shall motivate many of the young couples to opt for smaller families and less number of children. Accordingly, world community must start working for an informed family planning system across nation-states of the world alongside evolving an international legal instrument to control population



growth to make the international legal instrument to contain the emission more meaningful.

The people may have to pay more for energy and use less since now. But the shift to a low-carbon society holds out the prospect of more opportunity than sacrifice. Whereas putting a man on the moon or splitting the atom was born of conflict and competition, the coming of carbon race must be driven by a collaborative effort to achieve collective salvation. The road to such a salvation passes through quality population and not through quantity of population. Quality population will be more responsible and responsive to the need of the global health and sickening Earth.

Footnotes

¹See Ken Booth and Peter Vale, "Security in Southern Africa: After Apartheid, Beyond Realism", *International Affairs*, 1994, vol. 71, no. 2, pp. 285-304; Emma Rothschild, "What is Security" ibid.

² See <http://www.unfpa.org/world-population-trends> Retrieved on August 18, 2016. UNFPA is one of the World's largest funders of population data collection. It also advises countries that the best way to ensure sustainable development is to deliver a world where every pregnancy is wanted, every birth is safe, and every young person's potential is fulfilled. See more at: <http://www.unfpa.org/world-population-trends#sthash.hX0yVhij.dpuf>

³ Carl Haub, "World Population Data Sheet, 2012", on *Population Reference Bureau* (PRB), available on <http://www.prb.org/publications/Datasheets/2012/world-population-data-sheet/fact-sheet-world-population.aspx> Retrieved on August 18, 2016.

⁴ Ibid., no.3.

⁵ Max Roser, "Future World Population Growth", *Our World in Data*, <https://ourworldindata.org/future-world-population-growth> Retrieved on August 18, 2016. According to this source there are two primary determinants of population growth: life expectancy and fertility rates. The global improvement in life expectancy works to increase the world population, but it is more than offset by the fall in fertility. The global average fertility rate was 5 children per woman until the end of the 1960s and has halved since then. While the world population increased by 2% annually in the late 60s it has now slowed to an increase of just about 1%. From previous UN projections of population growth rates we have learned that the accuracy of the projections is very high.

⁶ "Human Population Growth and Climate Change", http://www.biologicaldiversity.org/programs/population_and_sustainability/climate/ Retrieved on August 22, 2016.

⁷ "World Footprint" *Global Footprint Network*, Available on http://www.footprintnetwork.org/en/index.php/GFN/page/world_footprint Retrieved in November 2015.

⁸ Tom Gleeson, Yoshihide Wada, Marc F.P. Bierkens, Ludovicus P.H. Van Beek, "Water Balance of Global Aquifers revealed by Groundwater Footprint", *Nature*

, 488, 2012, pp.197-200, available on www.nature.com/nature/journal/v488/n7410/full/nature11295.html. Retrieved in October 2015

⁹ David Pimental, "Soil Erosion: A Food and Environmental Threat", *Environment, Development and Sustainability*, 2006, no.8, pp.119-137. Available on www.saveoursoils.com/userfiles/downloads/1368007451-Soil%20Erosion-David%20Pimentel.pdf

¹⁰ "Oceans", United Nations, www.un.org/en/sustainablefuture/oceans.asp Retrieved in November 2015.

¹¹ World Wildlife Fund, "Living Planet Report 2014", www.wwf.panda.org/about_our_earth/all_publications/living_planet_report/. Retrieved in October 2015.

¹² "Current Population is Three Times the Sustainable Level" *World Population Balance*, Available on http://www.worldpopulationbalance.org/3_times_sustainable Retrieved on August 18, 2016.

¹³ "Do we fit on the planet", Global Footprint Network, http://www.footprintnetwork.org/en/index.php/GFN/page/world_footprint/

¹⁴ "Links between climate change and population growth", *Global Post*, November 28, 2012, www.pri.org/stories/2012-11-28/links-between-climate-change-and-population-growth

¹⁵ A. J. Challinor, J. Watson, D.B. Lobell, S.M. Howden, D.R. Smith, N. Chhetri, "A meta-analysis of crop yield under climate change and adaptation", *Nature Climate Change* 4, (2014), pp.287-291.

¹⁶ Ibid., no.6.

¹⁷ Ibid., no.6.

¹⁸ Ibid., no.6.

¹⁹ Ibid., no.6.

²⁰ Ibid., no.6. According to the same report, The United States has the largest population in the developed world, and is the only developed nation experiencing significant population growth: Its population may double before the end of the century. Its 300 million inhabitant produce greenhouse gases at a per-capita rate that is more than double that of Europe, five times the global average, and more than 10 times the average of developing nations. The US greenhouse gas contribution is driven by a disastrous

combination of high population, significant growth, and massive (and rising) consumption levels, and thus far, lack of political will to end our fossil-fuel addiction.

²¹ By Melissa C Lott, "10 Calories in, 1 Calorie out — The Energy We Spend on Food", on August 11, 2011 available on <http://blogs.scientificamerican.com/plugged-in/10-calories-in-1-calorie-out-the-energy-we-spend-on-food/>

²² "Links between climate change and population growth", *Global Post*, November 28, 2012, www.pri.org/stories/2012-11-28/links-between-climate-change-and-population-growth

²³ Ibid., no.22.

²⁴ Available on <http://www.mindfully.org/Sustainability/Americans-Consume-24percent.htm>

²⁵ See Rakesh Kochhar, "A Global Middle Class is more Promise than Reality", July 8, 2015. Available at <http://www.pewglobal.org/2015/07/08/a-global-middle-class-is-more-promise-than-reality/>

²⁶ Ibid., no.13.

²⁷ Ibid., no.6.

²⁸ It was 21st yearly session of the Conference of Parties (COP) to the 1992 United Nations Framework on Convention on Climate Change and 11th session of the meeting of the Parties to the 1997 Kyoto Protocol.



Climate Change, Nuclear Energy and Radiological Disaster Risk Reduction in India: Issues and Challenges

Dr. Rajesh Kumar

India has 22 nuclear power reactors operational and several new are coming up in the country. The issue of setting up and operating of new nuclear power and reprocessing plants stands intertwined between development, environmental/climate change concerns, and areas under mega projects being struck with natural calamities' like floods, earthquakes, tsunamis, manmade accidents or breach of security, all leading to nuclear disaster. Dependence on nuclear power, storage and disposal of nuclear waste, areas surrounding reprocessing plants, transportations of nuclear warheads and their safety is a highly risky proposition in the country. Before, during, and after major nuclear disaster, a coordinated emergency response to restoration and mitigation of further complications in nuclear power sector is an enormous problem. In the aftermath of Fukushima nuclear accident, a lot of concern is being expressed in the country regarding its preparedness and disaster handling capabilities. The NDMA Guidelines for dealing with nuclear disasters may prove to be of very limited use in case India is struck with Fukushima scale nuclear disaster. The paper analyzes India's preparedness, in the light of her national and international responsibilities and capabilities in case of climate change related nuclear disaster in the country. The objective of the paper is to analyse India's preparedness in case of nuclear disaster in the country. It is to know about the awareness level, training and preparedness among people about nuclear disaster in the country. The paper is divided in three sections. First section, deals with the backgrounds and likely risks involved with India's nuclear energy programme. Second Section, deals with post-disaster scenario in the light of; necessary legislations, international obligations, preparations, creation of structures, fixing of responsibilities for managing climate change related nuclear disasters in the country.

The last section, deals with the necessary policy interventions needed in India. The methodology used for completing this paper is content analysis of existing literature.

Introduction

Mainstreaming of Disaster Risk Reduction has emerged as important policy intervention issue for sustainable development in India. There is a realization that investing in 'Disaster Risk Reduction' helps in reducing economic vulnerability and enhancing resilience. India in recent years because of growing concerns about Climate Change has embarked upon a massive nuclear power programme in recent years as part of its military and energy security policy. Given the energy security needs consistent with the demands of a growing economy, it has taken to nuclear path in a big manner for generating electricity, apart from generation through coal, gas, hydro, wind or other renewable sources of energy. India is of the view that nuclear energy is cheap source of clean energy and its costs can be reduced to the level of energy through coal and it does not affect the Climate Change as it is considered as clean energy. India is expected to generate 60,000MWs of electricity through nuclear mode and it already has 22 nuclear reactors operational and around 60 new nuclear reactors are likely to be set up by year 2032.¹ The issue of setting up and operating of new nuclear power and reprocessing plants stands intertwined between development, environmental concerns, and areas under mega projects being struck with natural calamities' like floods, earthquakes, tsunamis, manmade accidents or breach of security etc., all might cause nuclear accidents/disasters. Dependence on nuclear power, storage and disposal of nuclear waste, areas surrounding reprocessing plants, transportations of nuclear warheads and their safety is a highly risky proposition in the country. The risk remains very high in India and raises serious questions over the capabilities and responsibilities of Union and State Governments in India which cannot match the



state preparedness and disaster planning in Japan and other developed countries of the world. Reports on Fukushima nuclear accident/disaster² have pointed out that even advanced countries can't handle nuclear disasters because of their unpredictable consequences which was experienced in case of Fukushima for example injection of sea water into nuclear reactor resulted into explosion instead of bringing down the temperature inside the reactor.

The Fukushima disaster in March 2011 was the worst nuclear disaster since Chernobyl in 1986 which had a significant impact not only on the policy of the countries like India, instead, Germany, South Korea, and even Japan have openly stated that these countries are going to shut down some of their nuclear reactors and reduce dependence upon nuclear reactors for power generation in future. In the aftermath of Fukushima accident, anti-nuclear peoples' movement at Kudankulam in Tamilnadu and many other parts of India has increased, thus, raising serious concerns about the nuclear safety and need of having more nuclear power plants in India. For dealing with such nuclear and radiological emergencies in India, the NDMG-NRE Guidelines for dealing with nuclear disasters titled 'Response Actions and Standard Operating Procedures (SOPs)' are to be followed as per classified document with MHA.³ The natural disaster that struck Indian states, Uttrakhand in mid-2013 and Jammu Kashmir in September 2014 and the manner in which disaster relief operations were carried out in Uttrakhand and Jammu and Kashmir both, one is compelled to rethink about India's capabilities to handle nuclear disasters of Fukushima scale. The doubts become serious as politics in India is too heavy even in cases of disaster related agencies like NDMA.

The paper is divided in three sections. First section, deals with imperatives for India's ever increasing dependence on nuclear energy that increases the possibility of nuclear disaster taking place in world's second largest populated country. Second section, deals with post-disaster scenario in the light of necessary legislations, international obligations, preparations, creation of structures, fixing of responsibilities for managing climate change related nuclear disasters as the second largest populated country of the world. The last section, deals with

emerging issues and lessons learnt in aftermath of Fukushima nuclear accident, for managing nuclear disasters in India. The paper is based upon certain assumptions: 1. Govt. of India's plan of generating 60,000 mega watts of electricity by setting up of 60 new nuclear reactors by year 2032 is likely to raise the risk of nuclear accidents/disasters in India. 2. Jammu & Kashmir, Fukushima and Uttrakhand disasters have raised serious questions over the capabilities Union and State Governments in India, which in all probabilities, cannot match the state preparedness and disaster planning in Japan and other developed countries of the world. 3. Nuclear Disaster Risk Reduction Management in India would need a massive preparations, investments and paradigm shift in disaster policy making. The methodology used for completing paper is content analysis of existing literature available in the public domain. Reports of various international agencies/think tanks, state as well as non-state agencies, like IAEA, NDMA, Japan's Diet, UN, CRS of USA and companies who sell reactors all over the world have been made. It also uses press coverage reviews and television programmes.

Climate Change and Nuclear Energy: The Paradox

Human-induced climate change is one of the most important environmental issues facing society worldwide. Scientific experts and governments acknowledge that there is strong scientific evidence demonstrating that human activities are changing the Earth's climate and that further human-induced climate change is inevitable. Changes in the Earth's climate are projected to adversely affect socioeconomic systems (such as water, agriculture, forestry, and fisheries), terrestrial and aquatic ecological systems, and human health. Developing countries are projected to be most adversely affected, and poor people within them are the most vulnerable. The magnitude and timing of changes in the Earth's climate will depend on the future demand for energy, the way it is produced and used, and changes in land use, which in turn affect emissions of greenhouse gases and aerosol precursors. The most comprehensive and ambitious attempt to negotiate binding limits on greenhouse gas emissions is contained in the 1997 Kyoto Protocol, an agreement forged in a meeting of more than 160 nations, in which



most developed countries agreed to reduce their emissions by 5 to 10% relative to the levels emitted in 1990. (Watson, 2003, p. 1925)

In order to achieve Kyoto targets and the objectives of Article 2 of the United Nations Framework Convention on Climate Change (UNFCCC), i.e., to stabilize the atmospheric concentration of carbon dioxide requires that emissions eventually be reduced to only a small fraction of current emissions, i.e., 5 to 10% of current emissions. All major industrialized countries except the United States, the Russian Federation, and Australia have ratified the Kyoto Protocol. (Watson, 2003, p. 1925). Highlighting the impacts of climate change, the IPCC Report says that by 2020, some 75 to 250 million people in Africa will face increased water shortages. Yields from rain-fed agriculture could fall by up to 50 per cent in some African countries. About 20-30 per cent of plant and animal species will likely face increased risk of extinction if global average temperature increases exceed 1.5°-2.5° C. Widespread melting of glaciers and snow cover will create risk of flash floods and, over time, reduce annual melt water from major mountain ranges (i.e.: Hindu-Kush, Himalaya, Andes), where more than one billion people live. Seven of ten disasters are now climate-related. More than 20 million people were displaced by sudden climate-related disasters in 2008 alone. An estimated 200 million people could be displaced as a result of climate impacts by 2050. (IPCC, UN, Stern Review 2006)

The discourse regarding climate change today lacks unanimity about the gravity of the situation world over. Going through the narratives, the climate change related studies/reports are largely divided between two set of groups. First group is of 'Climate Change Alarmists' who want change and aggressive reduction in GHG emissions, off course, fulfilling of their promises by being parties to international arrangements. Whereas, other group is of 'Climate Change Skeptics or Rejectionists' who do not see any merit in scientific reasons behind Climate Change, rather are of the view that it is evolutionary and earth related phenomenon. The differences between 'Alarmists and Rejectionists' have provided undue advantage to countries for not acting very fast. Countries instead of taking giant steps in this direction, today are more concerned about economic recessions,

nuclear proliferation, fight against terrorism, support to democratic movements, humanitarian interventions, undue concerns about rogue states and consolidating gains of globalizations only. The pessimism on part of the author is attributed to socio economic conditions (As per NSSO, GOI Report, 77 percent Indians survive on less than twenty rupees per day i.e., less than a half US Dollar) that exist in India, is also faced with similar dilemmas. The records of all the South Asian countries is poor on socio-economic parameters and but they can be blamed for endangering the lives of millions of people in the sub-continent by going nuclear. India's role during the recently held Paris Summit-2015 was very positive under Prime Minister Narendra Modi's leadership. Prime Minister Shri Narendra Modi participated in the High Level Leaders Segment of the 21st session of the Conference of Parties (COP-21) to the UN Framework Convention on Climate Change (UNFCCC) held in Paris on 30 November 2015, where he outlined India's position on key issues related to climate change negotiations. Prime Minister Modi and French President Hollande jointly launched the International Solar Alliance, to bring together 119 solar rich countries falling within the two tropics for promotion of solar technology and its applications. Prime Minister also participated in the launch of the US initiative "Mission Innovation" along with US President Obama, French President Hollande and Bill Gates, which is expected to facilitate affordable access to clean energy technologies. Minister of State for Environment, Forest and Climate Change, Shri Prakash Javadekar led the Indian delegation to COP-21 from 29 November – 12 December 2015. The text of the Paris Agreement adopted at the plenary meeting of COP 21 on 12 December 2015, preserves the fundamental principles of UNFCCC. It also takes into account India's core concerns and interests on all elements of the "Durban Platform" relating to mitigation/emissions reduction, adaptation, finance, technology, capacity building and transparency of action and support.⁴

Imperatives for India's Increased Dependence on Nuclear Energy and Likely Dangers

India for the past two decades has been pursuing economic policies under LPG norms for maintaining consistent GDP growth above 7% per annum to join the group of developed world by 2020. Given the



energy security needs consistent with the demands of a growing economy, it has taken to nuclear path in a big manner for generating electricity, apart from generation through coal, gas, hydro, wind or other renewable sources of energy. India is of the view that nuclear energy is cheap source of clean energy and its costs can be reduced to the level of energy through coal and it does not affect the Climate Change as it is considered as clean energy.

At present India has seven nuclear plants with 22 nuclear reactors (20 operational and 2 under completion) apart from research reactors at BARC, IGCAR and other production related establishments. They produce around 4700 Mwe of electricity only. Many new nuclear power plants are likely to come up like Jaitapur plant in Maharashtra, at Fatehabad in Haryana, Haripur in West Bengal and in Andhra Pradesh is in line with new policy of generating around 60,000 MWe of electricity through nuclear mode by 2032 after the 123 Agreement between India and USA. (www.npcil.gov.in, 2008). As per World Nuclear Association (WNA), India expects to have 20,000 MWe nuclear capacity on line by 2020 and 63,000 MWe by 2032. It aims to supply 25% of electricity from nuclear power by 2050. (<http://www.world-nuclear.org/info/inf53.html> &www.npcil.gov.in). As discussed, India's international obligations with regard to reducing the carbon emissions for preventing climate change, switching over to generation of electricity through nuclear mode suits her.

Disaster Threats because of Nuclear Power Plants

Scholars are of view that despite public concerns over least possibility of onsite accidents, waste disposal and uncertainties over economics, fuel switching to nuclear power currently remains the largest, proven, carbon-free generation option. One tonne of uranium produces the equivalent amount of electricity as 16,000 tonnes of coal and 80 000 barrels of oil. The spent fuel from the reactor still contains 235U, so it can be recycled. Reprocessing the spent fuel produces uranium, plutonium and waste. Safe disposal/storage of waste from the nuclear fuel cycle presents a challenge. (Whittington,2002, p. 1653-68) To some experts, the risk of major disaster is negligible, a nuclear power station is typically a system

where dangerous and destructive processes can be set in motion because it is thought that all the safety backup systems in place will guarantee our safety. For skeptics, the main threat came from the nuclear power stations also. (Markku Wilenius, 1996. P.5-8). India's records so far have been fair barring few small accidents at certain nuclear power plants, specially, Madras Nuclear Power Plant at Kalpakkam when it was struck with Tsunami and the nuclear reactor could be stopped successfully averting any disasters.

Fukushima nuclear accident has compelled countries and experts world over to ponder over such issues again. India's records so far have been fair barring few small accidents at certain nuclear power plants, specially, Madras Nuclear Power Plant at Kalpakkam when it was struck with Tsunami and the nuclear reactor could be stopped successfully averting any disasters. However, in the aftermath of the Fukushima March 2011disaster, one of the Reports strongly emphasised that no country, developed or developing, is immune to such disasters. Advanced democracies are not necessarily more resistant or better prepared than developing countries to deal with such events. The 11 March 2011 disaster shook the very foundation of Japanese society, shattering the idea of a safe and secure society guaranteed by the authorities. The Japanese public has started to question the level of risk that they were willing to accept and the model of society that they had aspired to prior to the disaster. Though Japan certainly has both the technical and financial capacities to rebuild the towns affected by the disaster, the social tensions and divisions created as a result will probably take much longer to heal. The Japanese experience thus offers many unique lessons for other democracies in terms of dealing with future disasters.⁵ In light of the above, India also need to learn several lessons from Japan.

Disaster Threats because of likely Nuclear War

Nuclear disasters can also occur because of the outbreak of nuclear war between countries because of certain reasons like; Accident, error, or malfunction or system failure; The actions of a 'rogue general'; Miscalculations ; The continuing military buildups; A 'bolt-from-the-blue' preemptive first strike; Technologically advanced nuclear weapons ; Role of



third parties; and Nuclear proliferation. (Petras and Morley, 1988, pp.151-53).

In light of above, a hypothetical nuclear exchange between India and Pakistan, in which each country targeted major cities through dozen, 25-kiloton warheads, as per Natural Resources Defence Council (NRDC) study which calculated that 22.1 million people in India and Pakistan would be exposed to lethal radiation doses of 600 rem or more and 8 million people would receive a radiation dose of 100 to 600 rem, causing severe radiation sickness and potentially death, especially for the very young, old or infirm and as many as 30 million people would be threatened by the nuclear attack. NRDC estimates that 8.1 million people live within this radius of destruction. (NRDC Report and Louis Ren Beres, 1998, pp.498-504). Similarly report of ICNND presented before the United Nations, says, a nuclear war between India and Pakistan could cause severe "climate cooling" and may have a devastating impact on agriculture worldwide. It may throw up major concentrations of soot into the stratosphere which would remain there for long enough to cause unprecedented climate cooling worldwide (leading to nuclear winter), with major disruptive effects on global agriculture. (The Times of India, 26 Jan 2010 & www.icnnd.com).

Social science research on efforts to maintain safe operations in many modern technological systems suggests that serious accidents are likely over time if the system in question has two structural characteristics: high interactive complexity and tight coupling. While the Indian and Pakistani nuclear arsenals are small and not complex, it is also clear, that the South Asian nuclear relationship is inherently tightly coupled because of geographical proximity. The present stalemate in case of Iran's nuclear programme has allegedly led to beginning of nuclear programmes in Middle-east countries like Saudi Arabia, Qatar, Bahrain, Oman, the UAE and Jordan.⁶ Several studies completed after Fukushima nuclear accident have pointed out that threats of nuclear proliferation have increased despite the fact serious steps have been taken for declaring the world free from nuclear weapons and a world free from nuclear reactors. The commitments made by U.S. President Barack Obama for making the World free from nuclear

weapons in recent years is worth noting. But all such new measures have not lowered down the security/disaster threats arising out of cases of nuclear proliferation.

Climate Change Catastrophe Can't be Replaced with Nuclear Disaster Catastrophe

The Report of Women in Europe for Common Future (WECF) says it is erroneous to consider nuclear energy as source of clean energy and this group is campaigning for a complete ban on production of nuclear energy in Europe. As per the report of IEA and IPCC, tripling the nuclear power output by 2050 would save five billion tonnes of CO₂ compared to a reduction of 25 to 40 billion tonnes by conventional methods by 2050. Since uranium is also a limited resource and, may last for about 70 more years, then switch to thorium for fuel, which is also finite, or to the Fast Breeder Technology together with fuel reprocessing – a polluting and dangerous production system that generates even more toxic nuclear waste. (www.wecf.com). A sense of prudence is needed on part of all countries, including India. Given the health hazards of nuclear material, nuclear power has repeatedly been shown to be toxic to human health at every step of production, right from uranium mining, to fuel production, from power generation to storage of nuclear wastes. Climate change itself can put the nuclear power energy supply at risk: nuclear power plants need great amounts of cooling water, which is why they are located along the coast or rivers. The group says, countries do not need nuclear power to avoid a climate catastrophe. (www.wecf.com)

As discussed, nuclear disasters might occur because of manmade accidents taking place at nuclear power plants or climate change induced earthquake, tsunami, floods, storms or any other natural calamity taking place or any use of nuclear weapon in and around the nuclear plant. Such natural calamities cannot be ruled out in India. For any disaster management, mitigation and response are the two important components of such management structure in the pre-disaster phase and post disaster phase respectively.

Management of Nuclear Disasters in India: National and International Obligations

India in the past one decade alone, has been struck with several natural disasters like Bhuj earthquake



(January 26, 2001), the Tsunami (December 26, 2004), the Kosi flood disaster (2009) and the most recent earthquake in Sikkim (2011) which resulted in total deaths of more than 50000 persons and displacement of 6.5 lac people on account of Tsunami and 2 million people got displaced during Kosi floods alone. Some of the manmade disasters like situations, Bomb blasts in Delhi, Mumbai, Pune and Bangalore have also resulted in deaths of several persons and it has forced Government of India to take necessary steps for handling such disasters effectively. Though, Disaster Management is not included in the Seventh Schedule of the Indian Constitution, money is made available to states by different Finance Commissions. The idea of setting up of NDMA was first time reflected in country's *Tenth Five Year Plan (2002-07) under Chapter 'Disaster Management: The Development Perspective Document'* under the Ministry of Home Affairs and a statutory body known as 'National Disaster Management Authority of India (NDMA)' in 2005 came up and visualized similar bodies being created in all Indian States. As on today, disaster management departments are set up in more than 11 states and UTs. (www.ndma.gov.in, 2005).

For avoiding nuclear disasters and implementing safety regulations, India is party to the Convention on Nuclear Safety (CNS) 1994, and ratified it on March 31, 2005, which is a legally-binding international convention to govern the safety of civilian nuclear power plants. In 2007, it signed ISSA with the IAEA and brought all civilian nuclear reactors under the safeguards. The Nuclear Safety Standards (NUSS) also apply to nuclear power plants in India. (Arun Shull, 2008, pp.5-6). A National Report was also prepared in accordance with the "Guidelines Regarding National Reports under the Convention on Nuclear Safety". (Govt. Of India, 2008, p. ii). Thus, India's preparedness for handling nuclear disasters and the guidelines issued by NDMA is largely inspired by the IAEA and other international norms.

In January 2003, the Indian Government had also established the Nuclear Command Authority (NCA) to manage its nuclear and missile arsenals and prevent its misuse. The complex system of control may be seen as a barrier against accidental or unauthorised use. (www.nca.gov.in and Hans Born). In order to prevent proliferation of nuclear technology,

ensuring that it is not stolen or leaked in any manner to non-state actors, Govt. of India also got Nuclear Non-Proliferation Law enacted in 2007.

Safety Policies For Nuclear Power Plants (NPPs) Implemented By NPCIL

All NPPs are run by Nuclear Power Corporation of India Limited (NPCIL). Under October 1996 Headquarter Instruction HQI-7003, the NPCIL accords utmost importance to Nuclear, Radiological, Industrial and Environmental Safety, overriding the demands of production or project schedules. Its objectives and various steps under implementation are:

- To maintain high standards for safety within plant as well as in the surrounding areas.
- To ensure that health, safety and environmental factors are properly assessed for all NPPs.
- To ensure that all employees, contractors, transporters working for NPPs adhere to safety requirements while carrying out their responsibilities.
- To keep the public at large informed about the safety standards and regulatory practices that are being adopted at NPPs.
- Setting up of targets of safety performance parameters and their periodic monitoring.
- Carrying out of different levels of safety audits and reviews viz. Internal, corporate, Regulatory and international like WANO Peer review.
- Assessment and enhancement of safety culture. (Govt. of India Report, 2008, p.82-83, accessed from wwwnpcil.gov.in)

Functioning of National Disaster Management Authority of India (NDMA)

The NDMA which came up on 23 December 2005, is responsible for heralding a broad and integrated approach to Disaster Management in India NDMA, in its official web site, has outlined the following responsibilities:

- Lay down specific policies on disaster management;
- Approve a concrete National Plan;
- Approve plans prepared by various Ministries or Departments of the Government of India in accordance with the National Plan;
- Lay down guidelines to be followed by the State Authorities in drawing up the State Plan as per local



and regional needs and in consonance with the central government;

- Lay down guidelines to be followed by the different Ministries or Departments of the Government of India for the Purpose of integrating the measures for prevention of disaster or the mitigation of its effects in their development plans and projects;
- Coordinate the enforcement and implementation of the policy guidelines and plan for disaster management;
- Recommend provision of designated funds for the purpose of mitigation;
- Provide such support to other countries affected by major disasters as may be determined by the Central Government;
- Take such other measures for the prevention of disaster, or the mitigation, or preparedness and capacity building for dealing with the looming disaster situation or disaster, as it may consider necessary.

Acting under NDMA's directive, twelve battalions of NDRF, located at nine locations, to tackle natural disasters and combat nuclear, biological and chemical warfare have been raised. Each battalion having 1,158 personnel, provides eighteen self-contained specialist search and rescue teams of forty five personnel each including engineers, technicians, electricians, dog squads and medical/paramedic is deployed in strategic locations under the supervision of the director-general of civil defense. (www.ndma.gov.in, 2005). Recently, NDRF was put to use when Sikkim and other parts of the country were struck by earthquake measuring 6.9 on Richter Scale on September 18, 2011. The BARC also provides training and select officers of CISF and the ITBF for responding to nuclear disasters. Capsules on disaster management are being included in the training schedules of all central para-military forces, the Indian Administrative Service, the Indian Police Service, The Indian Foreign Service and State Police Forces so that government officers are well equipped with the basic technical knowledge on how to respond in cases of emergency. (www.ndma.gov.in, 2005).

For preventing nuclear related materials falling in the hands of the terrorists that can be used in the form of Radiological Dispersal Device (RDD), and development of crude form of "dirty bomb", Workshops on Nuclear Disaster Management are organized by National Disaster Management

Authority with greater frequency for prevention, mitigation and preparedness and response at site and at hospital, rehabilitation, recovery and research. Input of specialists to delineate the threats, solutions, the technological procedures and to gain useful insights on counter terrorist operations, de-contamination, early detection, critical infrastructure protection, reconnaissance, protection, crisis management and emergency monitoring system is also there. (www.ndma.gov.in, 2005).

For dealing with nuclear disasters there is *National Disaster Management Guidelines: Management of Nuclear and Radiological Emergencies (NDMG-NRE)* which is a bulky document having ten chapters, having lengthy preface and 134 pages covering all technical and operational aspects of nuclear disaster. The Guidelines observe 'nuclear disaster' as that dimension of emergency situation leading to mass casualties and destruction of large areas and property, unlike a nuclear emergency, the impact of a nuclear disaster is beyond the coping capability of local authorities and such a scenario calls for handling at the national level, with assistance from international agencies, if required. (NDMG-NRE, Feb 2009, p. xxiv).

Highlights of National Disaster Management Guidelines: Management of Nuclear and Radiological Emergencies (NDMG-NRE)

The Guidelines involve the elements of rescue, medical care, transportation, evacuation, providing food and shelter, etc. The National Crisis Management Committee (NCMC) assisted by the National Executive Committee (NEC), Department of Atomic Energy (DAE), MHA and National Technical Research Organisation (NTRO) shall handle such emergencies. Specially trained NDRF, fire service personnel, civil defence, medical, transport, civil supplies, civil engineering departments, etc., are to have the radiation emergency response component as part of their response system to ensure large scale national capability in this regard. Response actions and Standard Operating Procedures (SOPs) are to be followed as per classified document with MHA. (NDMG-NRE, 2009, p. xxvii). The Guidelines emphasise about the deployment of armed forces, providing medical facilities to patients suffering from radioactivity by giving them medicines available in



large quantity i.e., Iodine Prophylaxis for dealing with cases of the thyroid gland. Identified hospitals with necessary trained staff will establish a decontamination station near the entrance. Standard procedures will be followed for decontamination. Triage and Evacuation and Sanitation at Temporary Shelters/ Camps are also emphasized. (NDMG-NRE 2009, pp.80-83).

The role of specialized teams of the NDRF and SDRF in providing necessary decontamination, triage, administration of de-corporating agents at the site, basic and advanced life-support and transportation to the identified hospitals in post disaster scenario is also highlighted. The identified hospitals will activate their DM plan. Schools, colleges, community buildings, religious places, etc., can be converted into makeshift hospitals. Patients needing specialized care would be shifted to the nearest Radiation Injury Treatment Centre having all necessary medicines, blood, vaccines and other equipments. Protection of International Trade and Commerce Interests shall require measures to be taken immediately to ensure international standards for trades during, as well as, after a nuclear/radiological emergency. (NDMG-NRE 2009, pp. 84-85).

Highlighting the Action Points, the Guidelines says The district collector of the affected area will take charge as the incident commander and in case of metros/big cities, the state authorities will nominate in advance an incident commander. The national disaster response plans will be developed by NEC in consultation with all stakeholders and guidance of NDMA. All nuclear facilities have their emergency response committees comprising experts from within the facility. (NDMG-NRE 2009, pp.86-87).

Post Fukushima Nuclear Plant Accident and Measures Taken in India

Immediately after the accident at Fukushima in Japan, NPCIL Chairman assured to Indians that there would not be any slowdown in the country's nuclear energy program and assured that the DAE and NPCIL are undertaking an immediate technical review of all safety systems of our nuclear power plants in case of large natural disasters such as tsunamis and earthquakes. (The Hindu, March 22, 2011). Scholars

in India have serious doubts about the secrecy in DAE, public health systems, their skills, skill development process, and that needs urgent attention. The response expected from state governments in case of nuclear disasters of the magnitude of Fukushima disaster is very doubtful. These guidelines would remain on paper if proper evacuation plans in a densely populated country are not worked out and practiced. (M.M.K. Sardana, 2011, pp. 1-4). Japan in its 750 page report on the Fukushima accident prepared by its Nuclear Emergency task force to the IAEA, has listed few findings like, Japan was ill prepared, reactors design were old, lack of facilities and equipments on sharing basis, poor information and decision-making and lack of protection facilities were reasons for the disaster. (ibid., p.9)

Governments need to take note of the need for an informed debate on nuclear energy as brought out in the above report. The exclusiveness of the Nuclear Energy establishments should give way to exchange of dialogues among communities, community leaders, scientists, sociologists, environmentalists, economists, health scientists, political leaderships and nuclear scientists with a view to recommend strategies to harness this source of energy balancing with safety, health and environmental concerns. (The Times of India, July 14, 2011).

The NPCIL in post-Fukushima also got done the safety evaluation of 20 operating power plants and nuclear power plants under construction. The report titled *Safety Evaluation of Indian Nuclear Power Plants Post Fukushima Incident* suggested a series of safety measures which pertained to strengthening technical and power systems, automatic reactor shutdown on sensing seismic activity, enhancement of tsunami bunds at all coastal stations, etc. (NPCIL Report, 2011).

Prime Minister Manmohan Singh further assured the country that all nuclear programmes are safe shall not be slowed down and in his speech said, "there would be no looking back on nuclear energy", while on a visit to West Bengal on 21 August 2011. He added, "we are in the process of expanding our civil nuclear energy programme. Even as we do so, we have to ensure that the use of nuclear energy



meets the highest safety standards. This is a matter on which there can be no compromise". (The Hindu, 22 Aug 2011).

"Our record of nuclear safety has so far been impeccable and we have taken steps after Fukushima to ensure that it remains so," Dr Srikumar Banerjee, Chairman, Atomic Energy Commission (AEC), said in interview given to the Tribune Newspaper. (The Tribune, 19 June 2011). But the NDMA Chief was pessimist about India's abilities to handle such post nuclear disasters when he said, "India is not prepared to deal with nuke disaster". (NDMA Chief , Wednesday, Jun 1, 2011, PTI).

Emerging Issues: Post Fukushima and Lessons for India

According to the Reconstruction Agency, the combined disaster of the earthquake, tsunami, and the nuclear accident caused nearly 16,000 deaths, over 1.2 million destroyed or damaged buildings, temporary evacuation of over 380,000 people from their home, most of whom were residents of Iwate, Miyagi, and Fukushima prefectures on the northeast coast of the Pacific Ocean. It also disrupted water supply, power distribution, and train, highway and air transport systems in a wide area of eastern Japan. Reconstruction of infrastructures has been partly hindered by radioactive contamination around the nuclear power plant, and as of spring 2013, some key infrastructures, such as a major train line and a major highway (Joban Line and Joban Expressway), have not been recovered yet. After the nuclear accident, no deaths from radiation exposure have been reported, and long-term radioactivity-related health risks for the Fukushima residents are considered to be low (WHO, 2013). Still, radioactivity added a special dimension to the problem. To reduce radiation exposure, all residents approximately within a 20 km radius of the Fukushima Dai-ichi power plant were forced to leave their home.⁷

According to a report, "The Nuclear Agenda: Prospects for U.S.-Japan Cooperation" edited by Yuki Tatsumi, published by STIMSON CENTER in Feb 2012, the Fukushima accident triggered a number of questions on how the government should be equipped to respond to nuclear emergencies. The accident at Fukushima showcased to the world that

regardless of the cause, the consequences of nuclear emergencies are dire. And the discussion did not stop there. The accident also triggered public debate over the safety of nuclear energy technologies, leading many people beyond Japan to question the wisdom of relying on nuclear power as an energy source. It also revitalized the anti-nuclear movements by activist groups.

Nations are learning from Japan's experience of the nuclear alternative through the Fukushima Daiichi disaster. Germany, Switzerland, Italy, Israel and other critical players have joined Japan in announcing they will build no more reactors is being considered—a major blow to any prospect of curbing global carbon emissions. Some will start shutting the ones they have presently. Switzerland's cabinet has voted to phase out atomic energy by 2034, and Germany has declared to close all its nuclear power plants by 2022. Germany is planning alternatives for generating electricity through natural sources including sun, wind and water. In May 2011 G-8 leaders also took lessons from the Fukushima reactor to seek more stringent international rules on nuclear safety. Japan's nuclear disaster registered as a wakeup call by indicating the importance of a national regulatory body's independence from both government and the corporate sector.⁸ The political and social dimensions of massive shifts in environment and population are difficult to predict, but the likelihood is that over time large groups of people will become ecologically displaced persons or "environmental refugees," forced from their historic homelands and needing relocation to more hospitable places within or beyond national boundaries. Such transitions will present large political and economic challenges, both for long-term humanitarian support and for immigration laws and enforcement. If these movements involve millions of desperate people, geographic and political boundaries will become increasingly problematic.⁹ A country like India which has so much of pressure on land because of high density of population need to put into place a very effective mechanism for dealing with such eventualities.

Conclusion

GOI on September 7, 2011 tabled in the Lok Sabha the much awaited independent Nuclear Safety Regulatory Authority Bill (NSRA), 2011 being created



to bring about much-needed independence and transparency in administering the safety oversight of nuclear operations in India. The idea behind having this independent body is to give greater autonomy in its functioning as earlier allegations were being made that DAE and NPCIL are government bodies, hence any investigation regarding accidents may not come out with the truth against sister concerns. Even the fresh assurances given by the NPCIL Chairman, people are protesting at many places Jaitapur, Kudankullam, Haripur, and Fatehabad against the land acquisition for new nuclear plants or getting the existing nuclear plant stopped. Overall it can be said that India need to take a cautious path for implementation of its ambitious nuclear power programme in light of its need as well as its realistic capabilities of managing nuclear disasters if at all they were to become a reality. A lot of education and training of citizens at massive scale need to be undertaken. There is an urgent need for developing a new culture of resilience towards such disasters on part of average citizens of the country. Union government need to encourage the state governments for preparing themselves in the light of current realities. Schools, Colleges and Universities of the country need to introduce a course on Disaster Management at every level of education. Youth of the country need to be attracted towards creation of exclusive wing of volunteers who would ever remain ready to offer their services in the hours of crisis on the patterns of N.S.S. The private sector of the country will also have to assume responsibility for such causes in a very big manner. A 'disaster cess' on patterns of education or petrol cess can be imposed for creating a financial reserve for training of youth and human resource exclusively for disaster related needs.

References:

- A Gopalakrishnan. (September 16, 2011). A Nuclear Regulator Without Teeth. *The Hindu*, p.9.
- Arun Shull. (November, 2008). *Nuclear Energy Futures Paper No. 2.* The Centre for International GovernanceInnovation, Ottawa.
- B. Bhattacharjee. (June 19, 2011). Safety Of Nuclear Power Plants Being Upgraded: AEC chief, <http://www.tribuneindia.com/2011/20110619/main1.htm> June 19,2011.
- Govt. of India. (April, 2008). *National Report To The Convention On Nuclear Safety*. Fourth Review Meeting of Contracting Parties.
- H. W. Whitington. (August 15, 2002). Electricity Generation: Options for Reduction in Carbon Emissions,Carbon, Biodiversity, Conservation and Income: An Analysis of a Free-Market Approach to Land-Use Change and Forestry in Developing and Developed Countries . *Philosophical Transactions: Mathematical, Physical and Engineering Sciences*, vol. 360, no. 1797, pp. 1653-1668.
- Hans Born. (2008). *Geneva Centre For The Democratic Control Of Armed Forces (Dcaf) Policy Paper – 1*. National Governance Of Nuclear Weapons: Opportunities And Constraints.
- International Commission on Nuclear Non-Proliferation and Disarmament (ICNNND) Report on India-Pakistan.
- International Panel on Climate Change (IPCC). (2006). UN, Stern Review.
- James Petras and Morris Morley. (Jan, 23, 1988). Nuclear War and US-Third World Relations: The Neglected Dimension. *Economic and Political Weekly*, Vol. 23, No. 4, pp. 151-153&155-158; Accessed from <http://www.jstor.org/stable/4378015> on 03/08/2011 07:03.
- Louis Ren Beres. (1998). In A Dark Time: The Expected Consequences Of An India-Pakistan Nuclear War. *American University of International Review*, vol.14, no. 1, pp. 497-510.
- M.M.K. Sardana. (2011). Impact of Accident at Fukushima on Nuclear Energy Programmes of India and China. ISID Discussion Note DN1109, July. *ISID Discussion Notes Public Health Issues and Disaster Management of Nuclear Fuel Cycles in India*.
- Markku Wilenius. (1996). From Science to Politics: The Menace of Global Environmental Change. *Acta Sociologica*, Vol. 39, No. 1, Sociology and the Environment (1996), pp. 5-30, Sage Publications, Ltd. Accessed from Stable URL:<http://www.jstor.org/stable/4194803> .Accessed: 03/08/2011 00:03.
- NDMA Chief. (Wednesday, Jun 1, 2011). 17:19 IST Place: New Delhi, Agency: PTI.
- National Disaster Management Authority of India (NDMA), www.ndma.gov.in.
- National Disaster Management Guidelines—Management of Nuclear and Radiological Emergencies*. (February 2009). NDMA, GOI, ISBN 978-81-906483-7-0, New Delhi. Accessed from www.ndma.gov.in.com. Pp.80-88
- Natural Resources Defence Council (NRDC) Report*, The Consequences of Nuclear Conflict between India and Pakistan, NRDC's nuclear experts think about the unthinkable, using state-of-the-art nuclear war simulation software to assess the crisis in South Asia. Accessed from www.nrdc.com.
- Nuclear Power Corporation of India Limited (NPCIL). (2011). *Report Safety Evaluation of Indian Nuclear Power Plants Post Fukushima Incident*. Govt. of India, New Delhi. Accessed from www.npcil.gov.in.
- National Statistical Survey Office Report (NSSO)*, Govt. of India.(2010).New Delhi. www.nssosurvey.gov.in
- Robert T. Watson. (Dec 2003). Climate Change: The Political Situation. Accessed from www.sciencemag.org science, vol. 302, 12, p.1925.
- The Report of Women in Europe for Common Future (WEFC)*, www.wefc.com
- The Times of India*. (July 14, 2011). PM wants Japan to bid adieu to N power. Accessed from www.articles.timesofindia.indiatimes.com.
- The Times of India*. (June 11, 2011). NPCIL Allays health concerns regarding nuclear plants. Accessed from www.articles.timesofindia.indiatimes.com.
- World Nuclear Association, <http://www.world-nuclear.org/info/inf53.html>

Endnotes

- ¹ Accessed from www.npcil.gov.in, 2008.
- ² *The Japanese Nuclear Incident:Technical Aspects* by Jonathan Medalia Specialist in Nuclear Weapons Policy,March 29, 2011, Congressional Research Service, 7-5700, www.crs.gov, R41728.
- ³ Accessed from www.ndma.gov.in/NDMG-NRE, 2009, p. xxvii.
- ⁴ Govt. of India, Ministry of External Affairs, *Annual Report 2013-16*, pp.149-50.
- ⁵ Reiko Hasegawa (2013) (IDDR).Disaster Evacuation from Japan's 2011 Tsunami Disaster and the Fukushima Nuclear Accident accessed from www.iddr.org.com.p. 7.
- ⁶ Guzansky , Asculai , and Lindenstrauss, Civilian Nuclear Programs in the Middle East, *Strategic Assessment*, Volume 15, No. 1, April 2012, pp.100-1.
- ⁷ <http://www.reconstruction.go.jp/topics/000046.html>, accessed on April 5, 2013.
- ⁸ Jain, Purnendra (2011).*Japan's post Fukushima diplomacy*,SAGE International.
- ⁹ Elizabeth Ferris (February 2013). *The Politics of Protection: The Limits of Humanitarian Action* (Washington, DC: Brookings Institution, 2011), chapter 7, Cited in Frederick S. Tipson, Natural Disasters as Threats to Peace, *Special Report 324* the United States Institute of Peace. Accessed from www.usip.org



Sustainable Development Goal No. 7 and India's Energy Security Scenario: A Status Report

Gadde Omprasad

Modern economic development largely depends on the availability of energy sources and effective utilisation of these sources. But as the traditional energy sources largely comes from the fossil fuels, over utilisation of these fuels can cause drastic changes to environment and ecology effecting future generations ability to utilise the resources available for their better life. As a result it becomes the responsibility of the current generation to reduce the dependence on fossil fuels and increase the utilisation of renewable energy sources which are environment friendly or cause less harm to the environment. This includes the process in which energy security is maintained without causing the harm to the environment. This process continues till the dependency on fossil fuels reduces and finally replacing with renewable energy sources. A developing country like India whose dependency on fossil fuels are higher it becomes a costly affair both financially and environmentally as it has to replace the dependency without harming its energy security. The paper analyses current energy security scenario in India, its gradual shift from coal and oil based energy dependency to renewable energy resources.

Introduction: Sustainable Development

Sustainable development which occupied most important position in the economic development of countries, can be called as a process which involves meeting human development goals with the protection of natural systems like natural resources, ecological and environmental conditions upon which the survival of the society depends. Widely accepted definition for Sustainable Development comes from *Our Common Future*, also known as the Brundtland Report, published by the United Nations World Commission on Environment and Development (WCED) in 1987. It says that "Sustainable development is development that meets

the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987:27). It contains two key concepts, i.e. the concept of (essential) needs, of the poor, and the idea of limitations. These limitations are imposed by the state (of technology) and social organisation on the environment's ability to meet present and future needs (IISD, 2016). The concept of needs says that humanity has the ability to make development sustainable without compromising the ability of future generations to meet their own needs. Thus the concept of sustainable development does imply limits which are not absolute but limitations on the usage of environmental resources by the present generations and by the ability of the biosphere to absorb the effects of human activities.

United Nations defines 'Sustainable development' as a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made keeping in consistent with future as well as present needs (UN, 2016).

The three sphere framework

From these definitions it may be said that Sustainable development, or sustainability, three spheres, dimensions, domains or pillars, which are the environment, the economy and society. Composition of these spheres as a framework was initially proposed by the economist René Passet (1975). It has also been worded as "economic, environmental and social" or "ecology, economy and equity" (UN 2014). This has been expanded by some authors to include a fourth pillar of culture (Paul et al. 2015; Paul, 2010) institutions or governance (UN, 2014).

Sustainable Development Goals (SDGs)

The essence of combining sustainability to economic development is to create a bond and to intertwine human activities with the natural world. This bondage



will ensure the prospects for future generations to enjoy a quality of life (Article Library, 2016). Since the natural world includes ecology and environment which have no state boundaries there needs a common effort to protect this natural world. For which a consistent and collaborative effort needs to be done by the countries and international organisations. As part of it, the United Nations General Assembly made an effort in paying a way to its member countries to work united in achieving the common goals of sustainable development. Accordingly in September 2015 it had adopted 17 Sustainable Development Goals (SDGs). These goals were part of "universal, integrated and transformative Sustainable Development" (UN, 2016b). The goals are to be implemented and achieved in every country from the year 2016 to 2030 (*ibid*).

Among all these goals, Goal 7: "Ensure access to affordable, reliable, sustainable and modern energy for all" is the most important one as the energy is perhaps one of the crucial element in the modern economic development of mankind. The modern day-to-day activities are solely dependent on energy. Economic development and energy are interlinked. Besides playing a crucial role in enhancing the agricultural production, its contribution to social sector is immense. It also covers both the domestic and productive uses. It is an important ingredient for technological advancement and for modernisation of peasant society. The use of energy increases the production of small scale and house hold industries and also can increase the profit of individual personal businesses by using minimum electric power (Broadman, 1982:33). This profit increases the access to capital that could be re-invested. In the socio-economic area, the electrification can lead to the increase in study hours at night for school going children, better access to health facilities and can fasten day-to-day activities of rural people leading to drastic changes in the socio-economic relations of the people (Sinha and Verma, 1983:157). It is observed that even the basic electric appliances have an important role in the social and economic development in the low income countries (IEA, 1997:30). The pollution levels of the energy resources particularly from fossil fuels are the primary concern to the environmental degradation. This can be addressed through Sustainable Energy.

Sustainable Energy

The energy fuels which do not produce high pollution levels are generally connected to sustainable energy. These fuels are comparatively clean, environment friendly and can also be used to satisfy the energy demand. They are also called as renewable energy sources. Unlike fossil fuels, renewable energy only produces little or even no pollution (Fainstein and Susan 2000:4). The most common types of renewable energy resources are hydroelectric, solar and wind energy (Bedsworf and Hanak, 2010:4). Wind power is becoming more and more popular in the world and by the end of 2014 its share in the total electricity production has reached to 3.1 percent (GSR, 2015).

Energy Sector Scenario in India

India's energy use is mostly based on fossil fuels and that too on coal resources. The country has significant coal and hydro resource potential, it is relatively poor in oil and gas resources. As a result it has to depend on huge oil imports to meet its energy supplies. About 80 percent of oil and oil related energy sources are imported from other countries. The geographical distribution of available primary commercial energy sources in the country is also quite skewed, with 77 per cent of the hydro potential located in the northern and north-eastern region of the country. Similarly, about 70 per cent of the total coal reserves are located in the eastern region while most of the hydrocarbon reserves lie in the west.

The glimpse of regional distributional of primary commercial energy resources may be Analyzed. The total Coal deposits in the country are about 220 bt, while the crude oil deposits are about 733 mt. Natural Gas resources are estimated about 750 BCM while the hydro power generation capability is estimated in terms of power generation is about 600 TWH. The table also suggests that the coal deposits are highly available in eastern region followed by western region; in the remaining regions coal deposits are insignificant. The natural gas reserves are highly concentrated in western reserves and hydro resources are highly available in north eastern region of India. Coal, oil, gas and hydroelectric potential constitute the conventional sources for electricity generation.



Among the energy usages, electricity is the most important component of economic activities of any country. As modern day to day activities are solely dependent on availability of electricity there is a direct connection between electricity usage and poverty. The electricity can be generated by using renewable and non renewable energy resources. These non renewable energy sources include fossil fuels like coal, oil and natural gas. Production of electricity from these three forms is called Thermal Power.

Thermal Power

Thermal power is the major source of power generation in India. Thermal power makes up about 67 percent of India's total power supply. It includes power generation from the sources like coal, oil and natural gas.

Coal

Coal is the major exhaustible resource of the country and has a life expectancy of over 200 years. The principal deposits of hard coal are in the eastern half of the country, ranging from Telangana in the Southern region to Arunachal Pradesh in the North-eastern region of the country. The states of Bihar, Orissa, Madhya Pradesh, Chattisgarh, Jharkhand and West Bengal together account for about 85% of reserves. The geographical concentrate of this reserves makes it necessary to transport it over long distances to the consuming centres scattered all over India. Coal resources have generally been classified as mineable and recoverable according to the extent of exploration, degree of certainty, convenience of mining and quality in use (TERI, 1995:10).

According to the estimates in 1992, the total geological resources of coal stand at 192.4 bt (GSI, 1995:9) which were revised to 252.35 bt in 2005 (CCO, 2007:43) and 253.29 bt in 2014 (Ministry of Coal, 2014:26) of which 407.02 mt were produced by 2006 (Ministry of Coal, 2007:215) and 846.86 mt were produced by the end of 2015 (Ministry of Coal, 1991-2016). In the span of a decade from 2006-2016 the production was increased to more than double to what used to be produced earlier.

The estimated total coal reserves in India would be around 301.56 bt. Out of these reserves 125.90 bt are proven, 142.50 bt are indicated and

33.31 bt are inferred. The prime coking coal reserves are estimated at 5.31 bt in which 4.61 bt are proved and another 699 mt are indicated. The medium coking type coal deposits are estimated at 27.04 bt of which nearly half reserves are proved. Blendable, semi coking type reserves are very low about 1.70 bt. The non coking coal reserves are marginally high. They are about 220.26 bt occupying about 90 percent of total coal reserves.

The coal reserves in the country are 253 bt out of which 95 bt are proven, 119 bt are indicated and 37 bt are inferred. Orissa has highest coal reserves of 61 bt followed by Chattisgarh with 41 bt. In the North Eastern states coal reserves are minimal. In Meghalaya they are about 460 mt, in Assam about 376 mt where as in Arunachal Pradesh they are 90 mt and in Nagaland about 20 mt. In the Southern Region only Andhra Pradesh has coal reserves with about 17 bt. The table also indicates that the high concentration of coal reserves are in Eastern Region.

The total coal production in 1960-61 was 55.53 mt. of which Coking Coal was 16.99 mt., Non Coking Coal was 38.34 mt. This production has grown to 31.35 mt. of Coking Coal, 375.53 mt. of Non Coking Coal and in additional 30.06 mt. of Lignite accumulating a total production of 437.10 mt in 2005-06. It is almost doubled by 2015 with 846.86 mt of coal production. This magnitude of increase in the production of coal was feasible due to the greater emphasis given to open cast-mining methods and output per man shift is much higher than underground mining (Ministry of Coal, 2007:217).¹ Only 21 percent of the total coal produced in India have coking properties and largely used for steel manufacturing and in foundries. The non coking coal is mostly used for power generation and steam generation by industries. There were no washeries for washing non-coking coal in the country at least till 1998 (Pavithran, 2005:69).

Lignite deposits mostly occur in the southern State of Tamil Nadu. India's geological resources of lignite are estimated to be around 43 billion tonnes, of which about 2 billion tonnes in the Neyveli area are regarded as "mineable under the presently adopted mining parameters", and taken as proven recoverable reserves in the survey conducted by Geological



Survey of India. Annual production of lignite is currently in the region of 22 million tonnes, almost all of which is used for electricity generation (Ibid).

Oil and Gas

India was the third largest consumer of oil in the world in 2015, after the United States & China. Out of total domestic Oil consumption imports constitutes about 81 percent. Oil along with gas contributes about 34.4 percent to primary energy consumption and by the end of 2015 natural gas constituted about 6.5 percent of the energy mix (Make in India, 2016).

India had 54 Trillion cubic feet of proven natural gas reserves at the beginning of 2015. Approximately 34% of total reserves are located onshore, while 66% are offshore. The total area of sedimentary basins in India is of order of 1.72 million kilometers, comprising 1.4 million km on shore and 0.32 million km off shore within the 200-m Isobath line (TERI, 1995:10). The resources of oil and oil equivalent of gas were estimated at 5.6 Bt. in 1964, increased to 12.8 Bt. in 1975 and to 15 Bt. in 1982. In 1992 Ministry of Petroleum and Natural Gas estimated these reserved at 21.31 Bt. Of oil and oil equivalent of gas (Ibid). With acceleration in exploratory and development drilling, there has been a substantial increase in the production of crude oil and natural gas. Production of crude oil rose from 6.8 Mt in 1970-71 to 33 Mt in 1990-91. By the end of 2014 the same has been increased to 46.51 Mt. Natural Gas production on the other hand increased from 1445 Million cubic meters in 1970-71 to 17998 million cubic meters by 1990-91 and 33656 million cubic meters by the end of 2014.

The details of Natural Gas production from 1970-71 to 2014-15 may be studied. The total production of Natural Gas in 1970-71 was 1445 MCM which increased to 32200 MCM in 2005-06. The same had been increased to 33656 MCM by the end of 2014-15. ONGC was the only exploratory organization in the early years of production. In 1995-96 OIL also started participating in exploratory activities of Natural Gas. In that year it produced 1433 MCM of Natural Gas whereas ONGC explored 20875 MCM. Private participation also started in 1995-96 with an exploration of 331 MCM which subsequently increased to 8912 MCM in 2014-15. In the year 2000-

OI ONGC explored about 24020 MCM of natural gas which in the following years decreased to 22570 MCM by 2005-06 where as explorations from OIL and Private players increased significantly.

Details of onshore and off shore oil exploration. In the initial years of 1970-71 the total oil production was 6822 MCT which was totally onshore. From 1980-81 onwards the offshore exploration was also included in the production. Private and Joint Venture production started in 1994-95 with 4 MCT of Onshore exploration and 251 MCT of offshore exploration, which increased to 9056 MCT of Onshore exploration in 2014-15 and 2729 MCT of Offshore exploration. By the end of the year 2014-15 the total oil production was 46517 MCT in which 18537 MCT was onshore exploration and 16195 MCT of offshore exploration was under public sector companies like OIL and ONGC.

Hydro Power

The annual hydro electric potential in the country is placed at 84000 MW of which more than three fourth is confined to the northern and northeastern region. The CEA has undertaken extensive studies to identify the sites for the development of pumped storage schemes.² The result indicates that the 56 sites identified offer a potential of 294021 MW of which only 37943 MW constituting only 12.90 percent had been developed until March 2016. There exists approximately another 5000MW of potential for exploitation through mini/micro hydel schemes along nearly 1000 sites. About half of these are concentrated in the South Indian states like Andhra Pradesh, Tamil Nadu, Kerala and Karnataka where the potential was placed at 2000 MU of energy per annum (TERI, 1995:11). Most of the hydel potential (about 75 percent) remains to be exploited.

The total hydro electric potential of India. The total hydro electricity potential is about 294 Gwh out of which 37943 MW has been developed so far and another 12510 MW are under development. The North Eastern region has huge potential of hydro power generation with about 117 Gwh constituting about 40 percent of total hydro power potential in the country. In the total hydro power potential of Northeastern region, about 2959 MW has been developed so far. The Western Region has lowest



potential for hydro power generation with about 17059 MW and in which 12380 MW has already developed. The Brahmaputra basin has about 35 Gwh of hydro electric potential in which 95 percent i.e., 33.17 Gwh has to be developed. In total about 87 percent of hydro electricity potential still need to be developed.

Nuclear Power

Power generation from the nuclear plants started from the fourth plan beginning from the 1969. At the end of 1999, India had 11 reactor units in operation, with an aggregate net generating capacity of 1897 MW. Nine were Pressurised Heavy Water Reactor (PHWR)'s (Power Line, 2006:83) the other two being of the BWR (*ibid*) type, all were relatively small units, with individual capacities up to 220 MW. Output from India's nuclear plants represented 2.7% of total electricity generation in 1999. Four 220 MW of PHWR's came into operation during 2000, Rajasthan-3 was connected to the grid in March and Kaiga-1 in October, while Rajasthan-4 entered commercial operation in December (*ibid*) and another 1000 MW of WWER's began at Kudankulam in Tamil Nadu in 2014. By the end of 2014 India had about 5780 MW which is around 0.02 percentage of total installed generating capacity (NPCIL, 2006:2). India's long-term objective for nuclear capacity is 20000 MW (gross) by 2020, in order to achieve this aim, India plans to develop fast breeder reactors and to make use of its huge indigenous reserves of thorium (CEA, 1983).

The installed capacity of nuclear power plants is 2,800 MW in 2006 accounting for 2.33 per cent of the total installed capacity (CEA, 2006:22). This has been reduced to less than 1 percent though gross nuclear power generation has been increased by the end of 2015.

Renewable Energy Sector Scenario

Apart from hydro power particularly small hydro power potential, India also hosts several renewable energy sources. The most important energy sources of this form are Solar and Wind.

Solar Energy

Because of its location between the Tropic of Cancer and the Equator, India has an average annual temperature that ranges from 25°C – 27.5 °C. This

means that India has huge solar potential. The sunniest parts are situated in the south/east coast, from Kolkata to Chennai. Solar energy can be produced by placing photovoltaic (PV) cells on the roof top of houses or commercial buildings, and collectors such as mirrors or parabolic dishes that can move and track the sun throughout the day are also used (GENI:10). It is estimated that India can generate 20 -30 MW of electricity using solar energy per sqkm (MNRE, 2011:10)

Wind Energy

The Global Energy Network Institute has estimated that wind energy potential in India exists about 46,092 MW, which would be among highest in the world. The wind power potential on a national level, base data collected from 10 states considering only 1% of land availability, is around 46,092 MW (Global Energy Network Institute (GENI), p. 12).

Out of the total wind energy potential more than 9000 MW of potential available in Andhra Pradesh and Telangana together followed by Gujarat, Karnataka and Rajasthan. This potential occupies about 15 percent of total installed generating capacity in the country. Out of the total potential the following table depicts the installed grid renewable power capacity by the end of 2015.

In the total installed renewable energy capacity wind power occupies more than 50 percent of share followed by solar power. There are significant proposals submitted in 2015 to various state governments to establish solar based power plants. However it has to be noted that it required large acres of land to setup a solar power plant. The availability of the land for commercial production of solar energy is a scarcity in many of the states, thus seriously hampering the potential of the country to generate solar electricity. Solar energy also undergone significant technological innovations as a result the per unit production cost has come down rapidly in the last decade, and also expected to further reduction in production costs. However in the next decade solar energy will be occupying a major share in renewable energy production in India.

By the end of 2015 India had an installed capacity of over 3 lakh MW in which coal generated



power occupies about 61 percent. An over view of the share of coal based thermal power in the total power generation we can find there is a significant reduction from about 80 percent in 1970s and 80. Similarly we can also find Renewable energy sources gradually taking major share. The growth rate of these energy forms were more than doubled between 2005 to 2015.

Energy Demand Projection and Challenges

As per the study conducted in the beginning of the new century, 2000, by The Energy and Resources Institute (TERI), based on the primary energy growth rates from the year 1997, it estimated that the demand growth rate would be about 4.4 percent per annum till 2019 and 3.6% per year during the period 2020-2047. For electricity, the corresponding growth rates would be 5.7% per year and 3.9% per year respectively. In the alternative scenario, growth rates are smaller, 3.7% per year and 3.0% per year for the primary energy and 5.1% per year and 3.4% per year for electricity. Both of these scenarios assume a very large dependence on imports, which is projected to increase from about 20% in the year 1997 to about 70% in the year 2047 in the base scenario and 60% in the alternative scenario (TERI, 2001).

Since India's energy mix is dominated by fossil fuels, the growth in energy demand would be expected to be addressed by these fossil fuels. However for the last one decade India is turning its attention to renewable energy sources as a result there has been a significant increase in the production from these resources. By the end of 2015 about 14 percent of the energy demand was met by the renewable resources. Nuclear and large hydro together would add to another 20 percent of total supply thus the combination of Renewable, Hydro and Nuclear power together contribute to around 34 percent of total energy consumption. Since there has been a huge protests due to ecological and environmental reasons against Nuclear and large Hydro power plants, substantial technological advancements are required before increasing dependence on these resources. If India moderately increases the share of renewable energy and reduces the fossil fuel component from the current 60 per cent to 50 per cent, the financial requirement increases to INR 34 lakh crores and further from 50

per cent to 27 per cent, it requires INR 42.5 lakh crores (USD 675 billion) (TARA, 2015:120). The concentration on increasing Solar power components and to produce about 20000 MW solar energy by 2022 India requires an estimated investment of Rs 46.97 billion (Srinivasan et al., 2015:28) Given the investment scenario in the country particularly participation of private investments in total energy production it seems to be quite possible with huge challenges to achieve the increase the renewable energy sources share in the total energy mix by 2050.

References

- Article Library: <http://www.yourarticlelibrary.com/environment/what-is-the-importance-of-sustainable-development-9910>
 Bedsworth, Louise W. and Hank, Ellen. (2010). "Adaptation to Climate Change". *Journal of the Americas Planning Association*, 76:4.
 Brodman, Janice (1982). *Rural Electrification and the Commercial Sector in Indonesia*. Washington: Resources for the Future, Discussion Paper, D 73 L.
 CCO (2006). *Provisional Coal Statistics 2005-06*. Government of India, Kolkata.
 CEA (1983). *A Report on National Power Plan (India): Generation Expansion Programme (1981-82 to 1994-95)*. Vol. I. Department of Power, Ministry of Energy, Government of India, New Delhi.
 CEA (2006). *Public Electricity Supply- All India Statistics- General Review*. 2006. Ministry of Power, Government of India, New Delhi.
 CEA carried out extensive survey on the possibilities and potential sites for the production of hydro electricity and came up with reports on Small Hydro Power Potential, Ganga and Brahmaputra basins.
 CEA, *Small Hydro Power Potential in India*. Ministry of Power, Government of India, New Delhi, 1997.
 CEA, *Preliminary Ranking Study of Hydro Electric Schemes, Vol. III: Ganga Basin*. Ministry of Power, Government of India, New Delhi, October, 2001; CEA, *Preliminary Ranking Study of Hydro Electric Schemes, Vol. III: Ganga Basin*. Ministry of Power, Government of India, New Delhi; CEA, *Preliminary Ranking Study of Hydro Electric Schemes, Vol. IV: Brahmaputra Basin*. Ministry of Power, Government of India, New Delhi.
 Faustino and Susan S. (2000). "New Directions in Planning Theory" *Urban Affairs Review*, 35:4.
 GSI, *Geological Survey of India-1992*. New Delhi, cited in, TERI, *Environmental Considerations and Options and Options in Managing India's Long term Energy Strategy-1995*, New Delhi
 GSR (2015). http://www.ren21.net/wp-content/uploads/2015/07/Ren12-GSR2015_Onlinebook_low1.pdf, 31.
 IEA (1997). *Electric Technologies: Bridge to the 21st Century and a Sustainable Future*. Organisation for Economic Cooperation and Development.
 ISD (2016). <http://www.usd.org/topics/sustainable-development>. Retrieved on 1-09-2016.
 Make India (2016). <http://www.makeminindia.com/sector-oil-and-gas>.
 Ministry of Coal (2007). *Annual Report 2006-07*. Government of India, New Delhi.
 Ministry of Coal (2014). *Annual Report 2013-14*. Government of India, New Delhi.
 Ministry of Coal, *Annual Report, 1991-2015-16*. Government of India, New Delhi.
 MNRE (Ministry of New and Renewable Energy) (2011). *Strategic Plan For New And Renewable Energy Sector For The Period 2011-17*. Government of India.
 NPCIL, *Annual Report 2013-16*. Government of India, New Delhi.
 Passer, René (1975). *The Economic and Living*. Payot, The University of California.
 Paul, James, Magee, Liam, Scrim, Andy and Steger, Manfred B. (2015). *Urban Sustainability in Theory and Practice: Circles of Sustainability*. London: Routledge.
 Pavithran, K.V (2005). *Economics of Power Generation, Transmission and Distribution*. New Delhi: Serials Publications.
 Power Line (2006). "Nuclear Power Statistics". Vol. II, No: 4.
 Sciri, Andy, Paul, James. (2010). "Accounting For Sustainability Combining Qualitative And Quantitative Research In Developing 'Indicators' Of Sustainability: Circles of Sustainability Urban Profile Process". *International Journal of Social Research Methodology*, 13(1), 41-53.
 Sinha, Sudhananda and Verma, K.K. (1983). *Electricity and Social Change*. New Delhi: Janaki Prakashan.
 Srinivasan, Girish, Trivedi, Goel and Nelson. (2015). *Reaching India's renewable energy targets cost-effectively*. New Delhi: Climate Policy Initiative.
 Sustainable Development (2015). <https://sustainabledevelopment.un.org/post2015/transformingourworld>
 Sustainable Development. <https://sustainabledevelopment.un.org/sdgs>
 TARA (2015). *Achieving the Sustainable Development Goals in India A Study of Financial Requirements and Gaps*. New Delhi.
 TERI (1995). *Environmental Considerations and Options and Options in Managing India's Long term Energy Strategy*. New Delhi.
 TERI (2001). *The Energy Data Directory & Yearbook 2000-2001*. Tata Energy Research Institute, New Delhi, India.
 TERI (2007). *TERI Energy Data and Dictionary*, 2005-06. New Delhi.
 UN (2016). <http://www.un-document.net/pdf-av.htm#1.2>. Retrieved on 1-09-2016.
 UN (United Nations) (2014). *Prototype Global Sustainable Development Report*. New York: United Nations Department of Economic and Social Affairs, Division for Sustainable Development.
 World Commission on Environment and Development (1987). *Our Common Future*. Oxford: Oxford University Press

Footnote

Open Cast Out Put per Man Shift in 2005 is 7.8 Metric Tonnes in 2005 as against 0.68 Metric Tonnes in Under Ground Mining. Ministry of Coal (2007). *Annual Report, 2006-07*. Government of India, New Delhi, p 217

CEA carried out extensive survey on the possibilities and potential sites for the production of hydro electricity and came up with reports on Small Hydro Power Potential, Ganga and Brahmaputra basins.
 CEA, *Small Hydro Power Potential in India*. Ministry of Power, Government of India, New Delhi, 1997.
 CEA, *Preliminary Ranking Study of Hydro Electric Schemes, Vol. III: Ganga Basin*. Ministry of Power, Government of India, New Delhi, October, 2001; CEA, *Preliminary Ranking Study of Hydro Electric Schemes, Vol. III: Ganga Basin*. Ministry of Power, Government of India, New Delhi; CEA, *Preliminary Ranking Study of Hydro Electric Schemes, Vol. IV: Brahmaputra Basin*. Ministry of Power, Government of India, New Delhi

India's Link West Policy: Ensuring Energy Security in the 21st Century

Dr. Saleem Ahmad and Dr. Khushbu Gupta

Energy Security

On the eve of the World War First, Winston Churchill made a historic decision to shift the power source of the British navy's ships from coal to oil. He intended to make the fleet faster than its German counterpart. But the switch also meant that the Royal Navy would rely not on coal from Wales but on insecure oil supplies from what was then Persia. Energy security thus became a question of national strategy. He said, "Safety and certainty in oil lie in variety and variety alone and the key to energy security has been diversification." Since Churchill's decision, energy security has repeatedly emerged as an issue of great importance and it is so once again today. This remains true, but a wider approach is now required that takes into account the rapid evolution of the global energy trade, supply-chain vulnerabilities, terrorism, and the integration of major new economies into the world market.¹ Although, in the developed world, the usual definition of energy security is simply the availability of sufficient supplies at affordable prices, therefore, different countries interpret what the concept means for them differently. But the energy-exporting countries focus on maintaining the "security of demand" for their exports, which after all generate the overwhelming share of their government revenues. The concern for developing countries is how changes in energy prices affect their balance of payments. For India, energy security now lies in their ability to rapidly adjust to their new dependence on global markets which represents a major shift away from their former commitments to self sufficiency.² In the context of India's energy security, Indian authorities have strongly encouraged to diversify the origins of their crude oil imports. While the West Asia has remained a resource region of prime importance, Indian oil companies have also looked towards alternative suppliers in Africa and South America. Two countries namely Nigeria and Venezuela as well as Angola to a lesser extent have stood as good alternative options.³ In a larger perspective, India's crucial interests in West Asia region are primarily

centred on its relations with the six Arab Gulf States such as Oman, the UAE, Saudi Arabia, Kuwait, Bahrain and Qatar which are strategically interlinked in the Gulf Cooperation Council.⁴

Modi's Energy Policy

India has a population of over 1.2 billion, accounting for more than 17% of the world's population and it is the fourth largest consumer of energy in the world after China, the US and Russia. India's energy consumption stood at 638 mt in 2014–15, a growth of 7.1% from the 2013–14 levels. A large and growing population will only add to the demand of energy consumption in the 21st century. India's energy consumption might seem to be high in absolute terms however it has one of the lowest per capita energy consumption among the developing economies of the world. India's per capita consumption of energy stood at 637 kg in 2012, which is significantly lower than the global average (2,500 kg), which indicates significant growth of energy demand in the country.⁵ The need of ensuring energy security is compelling for a developing country like India with importing 80% of its oil and gas requirements, the country has always been much conscious regarding the diversification for ensuring energy security. Therefore, PM Modi is pursuing energy security diplomacy by fostering alliances with hydrocarbon-rich nations and this will be advantageous for the Indian economy in the long run. Moreover, India has less than 1% of the world's oil and gas reserves and 6.8% of the world's coal. India's import dependence to meet its energy demands has intensified concerns that without reliable, affordable energy, it will be unable to sustain high economic growth. To ensure the growing energy demand, India has encouraged its energy security by diversifying the supply base from various countries.⁶ For instance, in the last two years of the Modi Government, India's energy security has received a major boost. During his multiple foreign visits, PM Modi has ensured that energy security receives its due attention. He signed several energy deals at



bilateral as well as multilateral level, signifying that energy security will be accorded greater attention in India's foreign policy in the 21st century. In the field of energy security, PM Modi has reached out to its immediate neighbours through bilateral and regional mechanisms. At the bilateral level, the country has significantly enhanced energy engagement with its smaller neighbours. At a regional level, the first major step in the realm of energy security was the signing of the SAARC energy agreement on electricity cooperation in November 2014.⁷ Moreover, India's energy security policy is renewing older relationships, for instance, India has renewed its old ties with France and Canada, who had earlier boycotted export of nuclear technology and essential materials to the country. As per the joint statement, Canada has agreed to supply 3,000 metric tonnes of Uranium to India. Similarly, France has also agreed to supply components to help India build nuclear reactors. Moreover, India's energy security policy has cultivated new relationships with willing partners. Moreover, during the PM Modi's visit to Australia, both countries agreed to cooperate in natural gas trade. The Modi Government has also adopted a similar strategy in case of oil sector. On nuclear energy front, India has expressed willingness to work with countries like China, Kazakhstan and Australia. In the renewable energy sector, India has joined hands with United States and China in expanding the utilisation of clean energy technologies. In the coal sector too, the Modi Government has adopted a more practical policy and decided to build more efficient coal fired power plants with Japanese cooperation. Amidst enthusiasm in cultivating new energy partnerships with different countries, PM Modi has also made substantial efforts in strengthening energy relationships with its traditional suppliers in West Asia and particularly with the GCC countries.⁸ Moreover, India's economic growth, rising international influence, and new status as a nuclear weapons state have made it an attractive partner for most of the West Asian countries. They have increasingly looked at India as an emerging geopolitical power, a major destination for their exports, and a possible venue for their investments. The most visible illustration of this policy shift was India's establishment of diplomatic relations with Israel in 1992, a country which had long neglected for fear of estranging its Arab partners. Over the last 25 years, India has also simultaneously developed strong

strategic partnerships with Iran, Saudi Arabia, the United Arab Emirates and the Gulf Cooperation Council. Cooperation in counter-terrorism between India and these states has also added a new strategic dimension. Gulf countries are no longer just a source of oil; they have also become economic and political partners in the region. India has simultaneously sought to maintain regular access to energy resources and markets, preserve the welfare of its large Diaspora, acquire high-tech military equipment from Israel, limit the diffusion effects of socio-religious tensions, and compete with China for influence in the region.⁹

Look West Policy under the UPA

While announcing the Look West Policy in 2005, Former PM Manmohan Singh stated that "the Gulf region, like South-East and South Asia, is part of our natural economic hinterland. We must pursue closer economic relations with all our neighbours in our wider Asian neighbourhood. India has successfully pursued a Look East policy to come closer to the countries of South-East Asia. We must come closer to our western neighbours in the Gulf." Moreover, India considers the Gulf region as part of its extended neighbourhood. Several high levels of visits have taken place from India and the relationship has become stronger over the last few years. The relationship has been marked by the growth of trade and business, increased cooperation in the fields of security, regional and international affairs and improved political understanding. The increasing number of visits and agreements signed during the last couple of years has helped to define India's priorities and long term interests in the West region.¹⁰ During the first term of the UPA government, Prime Minister Manmohan Singh talked of a Look West policy and cited the importance of the West Asia in India's energy security. During the second term of the UPA, the idea of a Look West policy surfaced again. Nothing much came out though. Unlike South East Asia, where a strong mechanism for regional cooperation existed in the form of ASEAN, but there was no institutional framework for West Asia that could mechanise India's engagement with the region. The political initiative, therefore, had to come from India during the UPA government. Despite the vital importance of the West Asia for India, New Delhi has been unwilling to devote significant political and diplomatic energies towards the region.¹¹ For example, Manmohan Singh barely



travelled to the West Asia during his decade long tenure as the PM of India. Two of the five countries he visited namely Egypt and Iran, because they were hosted Non-Aligned summits. His bilateral visits were to Saudi Arabia, Oman and Qatar. Moreover, building a closer relationship with Israel does not mean, India must down grade its relations with the Arab countries. India's stakes in the Arab world are massive and range from energy security to counter terrorism. Neither Israel nor Arabs are asking India to choose between them; both of them want stronger and deeper relationship with New Delhi. More broadly, the West Asia region has entered in a period of profound turbulence and traditional alliances and partnerships are breaking down. All this demands more and not less Indian engagement in the West Asia region.¹² Acknowledging that energy interests had to be factored in the conduct of India's foreign policy, the Ministry of External Affairs set up an Energy security division in 2007. It is not clear, however, whether India has developed a consistent energy diplomacy or not, as reflected by the debates surrounding its foreign assets acquisitions.¹³

Modi's Link West Policy

When we speak about Look West policy, it refers to the nations that lie on the western side of India. Most of the West Asian countries lie in the western neighbourhood of India and hence need special attention while framing the energy security policy. This forms an important part of India's overall foreign policy agenda.¹⁴ PM Modi's emphasis is not just looking east but also linking west, indeed, he sets the direction to the shaping of a clear Link West Policy. India having success in Look East Policy, now time has come to focus on Link West Policy without detraction from the East. As discussed earlier, India has high stakes in the region and must ensure that its critical interests are preserved and therefore, its story depends largely on energy supplies from the region. It is thus imperative for India to ensure its supply of hydrocarbons from its trading partners. Half of the total oil imports of India come from the GCC countries. Saudi Arabia is the largest supplier of oil and Qatar is the largest supplier of gas to India. In 2013-2014, India imported 38.18 mt of oil or 20.18 % of its total oil imports from Saudi Arabia.¹⁵ It is the second largest energy consuming country in Asia. To this end, Saudi Arabia will remain the most important

energy supplier to India in the future. The Riyadh Declaration of 2006, signed by the two countries emphasizes the strengthening of the strategic energy partnership. As a follow-up to this, there was also talk of taking the 'buyer-seller' relationship to a higher strategic energy cooperation level. With demand running ahead of supply, the capacity of storing crude oil will be an important factor in India's growth story in the 21st century. The idea of India's "Strategic Petroleum Reserve" was conceived in the 1990's and is receiving a lot of attention from the Modi government.¹⁶

From the GCC perspective, India represents the narrative of economic and technological achievements in a multicultural democratic order. India has the added advantage in its foreign policy posture that it adopts positions that are non-intrusive, non-prescriptive and non-hegemonic. India is thus well-placed to take the lead in setting up the proposed diplomatic initiative in West Asia. The India-Gulf relationship is taking an upward trajectory, and thus, it is time for India to adopt a formally articulated Link West Policy in line with the successful Look East Policy.¹⁷ India's engagement with the region and its critical importance for India's security means that standing aloof is no option. A Link West Policy should focus on strengthening bilateral political, economic, and security ties with the countries of the Gulf region. Regular interaction at the highest levels will infuse further confidence in the relationship. PM Modi's recent initiatives in the region reflect its growing desire to strengthen defence and security ties with the Gulf countries. Moreover, India has to play a more effective role in the shaping of energy security in the region. If India misses out, its interests will be affected in future.¹⁸ Furthermore, PM Modi's visits to the Kingdom of Saudi Arabia and the United Arab Emirates, in April 2016, resulted in stronger security partnerships with the expanding cooperation in the region. Saudi Arabia and India have also agreed on the need to intensify bilateral defence cooperation, through exchange of visits by military personnel and experts, conduct of joint military exercises, and exchange of visits of ships and aircrafts. Besides, they have made an unprecedented agreement to jointly develop arms and ammunition in India. This is a diplomatic victory for India which highlights the importance of the Gulf States that place on elevating



ties with India.¹⁹ According to Shivshankar Menon, West Asia and the Gulf countries, therefore, are very important for India and affect our security and prosperity directly. For India, West Asia represents our access to Central Asia, Russia and Afghanistan, and, potentially, overland to Europe. If we are to ensure these vital communications links, we must work actively with Iran to actually implement long discussed but unrealised ideas of the North-South Corridor, the development of the Chabahar Port, the India-Pakistan-Iran oil pipeline, and other connectivity projects. Certainly, India cannot achieve all its goals in this complex and uncertain region alone, and we will need partners from the West Asia region.²⁰ Therefore, PM Modi's recent visit to Tehran marks a new geo-political beginning in the Arabian Gulf and putting the Chabahar Port in the grand chess board of India's strategic calculus in the West Asia region. Just about 72 km away from Gwadar Port of Pakistan developed by China, India signed the strategic Chabahar Port agreement with Iran which analysts describe as India's calibrated stroke against China's expanding regional influence. Iran's geo-strategic location can add to India's benefits in securing its national interest. During the visit, India and Iran signed a dozen agreements like a pact to set up an aluminium plant; and on laying a railway line for India's connectivity to Afghanistan and Central Asia. Moreover, India, Iran and Afghanistan also signed a tripartite agreement on the Chabahar Port for a land-cum-sea corridor for the transit of goods to Afghanistan and Central Asian countries circumventing Pakistan. In the larger geopolitical context, the Chabahar Port deal is no doubt a strategic victory for India.²¹ The recent visit by Petroleum and Natural Resources Minister, Dharmendra Pradhan, offered to invest up to \$20 billion in oil, petro-chemicals and fertiliser projects in joint ventures with Iran if Tehran provides land and gas at concessional rates. He also expressed an interest in setting up an LNG plant and a gas cracker unit at Chabahar Port. The official lifting of western sanctions against Iran in January 2016 has expanded the scope of Indo-Iranian engagement significantly and India is trying to recalibrate its Iran policy in the near future. Iran's crude oil exports to India are now three times higher compared to last year.²² Further, New Delhi has signed an air services agreement with Tehran enhancing the number of flights between the two nations and

allowing each other's airlines to operate to additional destinations. The two sides have also inked a memorandum of understanding that is aimed at increasing bilateral trade to \$30 billion from \$15 billion.²³

Ensuring Energy Security

Ensuring long term energy supply is of primary importance for India in the West region. As it has been discussed earlier, India is currently the fourth largest energy consuming country in the world and it may go up to third position in next couple of decades. The growing energy demand has undoubtedly dictated India's initiative of building up a strategic energy partnership with the region to ensure long term energy supply for the country. On the contrary, India's Link West policy has received the required and necessary reciprocation from the Gulf countries, and therefore, they have adopted a Look East policy focusing on India and China, two major rising Asian giants. The rise of Asia in general and India in particular has impressed the Gulf countries that have started trusting India and its increasing profile.²⁴ Apart from the Gulf countries, Iran figures prominently in India's Link West policy. Iran in a number of ways is an important country for India. Though the relationship between the two has gone through many difficult phases, however, it has been strengthened after a couple of high level visits exchanged between New Delhi and Tehran. Iran has been defined as a part of India's proximate neighbourhood. Its geo-political and strategic location, long coastline along the Gulf, and its influence over the Straits of Hormuz make it an important country in the West region.²⁵ For India, Iran has the third largest proven oil reserves and second largest proven gas reserves in the world. Iran's close geo-graphical location with India would be beneficial for transporting oil and gas at relatively lower cost. Another potential area of cooperation between India and Iran is in maritime security. The Indian interest in the Indian Ocean region and the proximate neighbourhood focuses on the need for regional peace and stability, mutually beneficial relations with littoral states, accessibility of oil and gas resources, the freedom of navigation through the Gulf and the Straits of Hormuz, and access to regional markets for Indian goods, technology, investment, labour and services.²⁶ India's Link West Policy has considerable attention in the region because of its significant national interest;



the GCC countries are India's largest trading partners and the two-way trade between India and the region was over US\$ 180 billion in 2014-15. The other important component determining the strength of the bilateral partnership between India and the region is the presence of a large Indian community, particularly in the Gulf countries, numbering nearly 8 million. The community has worked very hard not only towards contributing to the development and growth in their countries of stay but in also providing for the Indian economy through remittances of over US\$ 40 billion annually. The most important pillar of cooperation with the GCC is economic cooperation. Bilateral trade in 2014-15 between India and the group was US\$ 133.73 billion with India's exports at US\$ 49.3 billion and imports at US\$ 84.43 billion. Negotiations are ongoing for an India-GCC Free Trade Agreement. India should consider itself as an attractive destination for investment of the Sovereign Wealth Funds owned by the GCC States around US\$ 2.8 trillion such as UAE US\$ 1,214.8 billion; Saudi Arabia US\$ 673.9 billion; Kuwait US\$ 592 billion; Qatar US\$ 256 billion; Bahrain US\$ 11.1 billion; Oman US\$ 6 billion.²⁷

India and Saudi Arabia

The visit of PM Modi to Saudi Arabia from April 2-3, 2016 was a singular success. The discussions between the Prime Minister Modi and the King Salman bin Abdulaziz Al Saud "enabled better understanding and appreciation of each other's concerns and perspectives, recognising the close inter-linkage of the stability and security of the Gulf region and the Indian subcontinent". Defence and security cooperation was an important subject in the discussions. The two countries agreed to enhance cooperation to strengthen maritime security in the Gulf and the Indian Ocean regions, vital for the security and prosperity of both countries. Saudi Arabia is India's 4th largest trading partner with bilateral trade at US\$ 39.26 billion in 2014-15. Exports were valued at US\$ 11.16 billion and imports at US\$ 28.1 billion. During the PM Modi's visit, the two countries agreed upon the need to further strengthen economic ties, particularly through diversification of non-oil trade. The Saudi side appreciated the various initiatives taken by the Government of India towards economic development, particularly in the investment field. The Saudi side expressed its interest in investing in infrastructure development in India. The importance

of energy security as a key pillar of the strategic partnership was reiterated during the discussions. Saudi Arabia is India's largest supplier around 20% of crude oil to India valued at US\$ 21.8 billion in 2014-15. The two sides have agreed to focus on investment and joint ventures in petrochemical complexes, and cooperation in joint exploration in India, Saudi Arabia and in third countries. Indians form the largest expatriate community in Saudi Arabia numbering around 3 million.²⁸

India and UAE

PM Modi visited the United Arab Emirates in August 2015, the first since Mrs. Indira Gandhi's visit to the UAE in 1981. The Crown Prince of Abu Dhabi was in India in February 2016. India-UAE bilateral trade was valued at US\$ 59.15 billion in 2014-15. UAE is our 3rd largest trading partner after China and the USA. It was agreed during the PM Modi's visit that both sides would resolve to work together to substantially increase trade by 60% over the next five years. Cooperation in the energy sector is an important pillar of India-UAE economic relationship. The UAE is the 6th largest supplier of crude oil to India. India and the UAE have decided to go beyond a buyer-seller relationship. The two sides agreed to promote strategic partnership in the energy sector, including through UAE's participation in India in the development of strategic petroleum reserves, upstream and downstream petroleum sectors, and collaboration in third countries. UAE leaders have expressed appreciation for the role and contribution of the around 2.5 million strong Indian community in the UAE towards UAE's development.²⁹

India and Qatar

India's relations with Qatar have been friendly. The visit of the Emir of Qatar in March 2015 was a success. During the Emir's visit, both sides "discussed ways and means to build a forward looking partnership by further broadening and deepening the bilateral engagement and by better leveraging the existing complementarities between the two countries in key areas of mutual interest". Bilateral trade with Qatar was US\$ 15.66 billion in 2014-15 with exports at US\$ 1.05 billion and imports US\$ 14.60 billion. Qatar continues to be the largest source of natural gas imports by India, supplying over 80% of India's gas imports. Strengthening cooperation in combating



terrorism was an important element during the discussions. Qatar is home to nearly 700,000 Indians.³⁰

India and Kuwait

India relations with Kuwait have been close, warm and friendly. Bilateral trade touched with Kuwait touched US\$ 15.58 billion in 2014-15 with exports valued at US\$ 1.2 billion and imports US\$ 13.38 billion. Kuwait was the fourth largest exporter of crude oil to India in 2014-15. The strength of the Indian community in Kuwait is over 800,000. It has been the community of first preference. Kuwaiti authorities expect the Indian community to cross the one million mark in the very near future.³¹

India and Iran

India welcomed the announcement of lifting of nuclear related sanctions against Iran on January 17, 2016, calling it a milestone representing “a significant success for diplomacy which signalled a new chapter of peace and prosperity in the West Asia region. India looks forward to further developing its longstanding, close and mutually beneficial economic cooperation with Iran, including in the spheres of energy and regional connectivity”. India-Iran bilateral trade during 2014-15 was US\$ 13.13 billion. India’s imports totalled US\$ 8.96 billion with exports totalling US\$ 4.17 billion in 2014-15. Discussions are underway between India and Iran for a Preferential Trade Agreement. Cooperation in the energy sector with Iran acquires importance as it holds the world’s fourth-largest proven oil reserves and possesses the world’s second largest natural gas reserves. Iran has traditionally been an important source of crude oil for India. Moreover, Energy is an important component in the matrix of cooperation emanating from West Asia. The Maghreb region is a major source of phosphates and other fertilisers contributing significantly towards India’s food security. The new and emerging areas of India’s cooperation include agricultural research, dry land farming, irrigation and environmental protection. The Indian community remains the preferred community in the countries of Gulf and West Asia due to their expertise, sense of discipline, law abiding and peace loving nature.³²

The Road Ahead

According to the International Energy Agency, India’s domestic oil production is limited to 700,000 barrels/

day, its electricity consumption will grow at an annual rate of 4.9% until 2040. Its dependence on imported oil will then reach 90% of the total, increasing the country’s strategic vulnerability. India is a major customer for Arab oil producers, but it is naturally eager to diversify its supplies of oil and gas. The importance of Iran, which has the largest natural gas reserves after Russia, cannot be overstated.³³ As stated above, the stability and peace in the region is vital for India’s own security and development, especially with respect to its energy needs. In this context, India’s Indian Ocean policy which puts emphasis on its possible role as a contributor to the security of the littoral states and islands, and a partner in their socio-economic development assumes importance. The safety of Sea Lines of Communications is crucial for the Gulf States through which their valuable export of oil and gas transits. Indeed, defence cooperation is a very promising area between India and the Gulf countries. With its record of a balanced and peaceful foreign policy, and its consistent partnership with the Gulf in the areas of trade, investment and economic development, India is ideally placed to evolve a unique relationship with the neighbours on the western flank of the country.³⁴ India has seen the West Asia almost entirely through the prism of commercial interests, namely imports of energy and exports of migrant labour. Now, geopolitical winds are shifting and the West Asia is rapidly becoming more strategically important to India. This is due in part to the anticipated decline, relative to other powers, of Washington’s interest and influence in the region, creating room for newcomers. China’s growing involvement further increases the stakes, as does India’s ambitions for a sphere of influence encompassing the Western Indian Ocean. In responding to both opportunities and threats, New Delhi should adopt a long-term vision, targeting states and actors most important for India’s strategic ascendancy and increasing engagement commensurately.³⁵

India’s energy policy therefore has to be focused on ensuring energy security. A key item on the priority agenda of the Indian government has been to address the country’s energy situation which is precarious and to develop a structured response to meet it. Accordingly, the newly-set up National Institution for Transforming India, known as NITI



Aayog, which replaced India's Planning Commission, has been tasked to frame a blueprint to ensure India's energy security for the next 100 years. At the core of India's energy situation, it imports 80% of its energy needs with an import bill of \$150 billion which is expected to double to \$300 billion in another 15 years. In order to economise, the government is working on a plan to cut 10% of its energy imports by 2022 and 50% by 2030. The blueprint will adequately address issues of energy diplomacy, with specific focus on developing a good business relationship with the countries of West Asia particularly the GCC states.³⁶ In the period to 2040, India will overtake China as the largest source of rising demand for oil. The time to begin securing its interests in West Asia is now when it holds the advantage.³⁷

Conclusion

In a nutshell, nobody can deny the fact that ensuring energy security has become the need of hour to maintain India's economic growth in the coming years, and this is the responsibility of India's foreign policy to ensure its energy security interests in all over the world; diversification of energy resources has become a prompt concern for the PM Modi government. More specifically, this is the right time to take greater responsibilities in the West Asia region and particularly in the GCC countries to create a strong security architecture to safeguard its geopolitical, economic and energy interests in the region. Moreover, India as an emerging power in the 21st century, India must keep its boots on the West Asia ground and ensure to provide security to the regional states of West Asia in case of emergency. Because, the regional equations are changing rapidly and the United States of America seems less interested to provide security in the region in future, however, India has a positive image in this region and it can fill this vacuum by maintaining close relations with the West Asian countries. In the field of economic trade, India has to engage with the West Asian countries enthusiastically and specially with the Gulf countries.

Better late than never, India's Look West Policy under the UPA now it has become Link West Policy under the PM Modi government or some scholars say Think West or Act West Policy needs a greater emphasize to materialise its structure and future plan to secure our national interests in the West

Asia region. Though, the Modi government is much more active than earlier government to implement its Link West Policy. However, it's too early to say anything about the PM Modi's Link West Policy; however, the current government has gained commendable success in this direction.

Endnotes

- ¹http://www.un.org/ga/61/second/daniel_yergin_energysecurity.pdf
- ²Ibid..
- ³http://www.centreasia.eu/sites/default/files/publications_pdf/note_intern_ational_dimensions_india_energy_security_february2014_0.pdf
- ⁴<http://www.asianaffairs.in/2015/09/act-east-look-west/>
- ⁵<http://www.pwc.in/assets/pdfs/publications/2015/lets-energise-meeting-indias-growing-fuel-demand.pdf>
- ⁶Ibid..
- ⁷<http://www.dailypioneer.com/columnists/oped/energy-diplomacy-gets-fresh-impetus.html>
- ⁸Ibid..
- ⁹<http://www.thehindubusinessline.com/opinion/a-deft-tightrope-walk-over-west-asia/article6030095.ece>
- ¹⁰http://www.idsa.in/system/files/IB_IndiaLookWestPolicy.pdf
- ¹¹<http://indianexpress.com/article/opinion/columns/modi-and-the-middle-east-towards-a-link-west-policy/>
- ¹²Ibid.,
- ¹³http://www.centreasia.eu/sites/default/files/publications_pdf/note_international_dimensions_india_energy_security_february2014_0.pdf
- ¹⁴<http://indianexpress.com/article/opinion/columns/modi-and-the-middle-east-towards-a-link-west-policy/>
- ¹⁵<https://www.linkedin.com/pulse/link-west-india-gulf-symbiosis-school-of-international-studies>
- ¹⁶Ibid.,
- ¹⁷[http://associationdiplomats.org/Publications/ifaj/Vol10/10.4/IFAJ%20-%20Oct-Dec%202015%20-%20Debate%20\(F\).pdf](http://associationdiplomats.org/Publications/ifaj/Vol10/10.4/IFAJ%20-%20Oct-Dec%202015%20-%20Debate%20(F).pdf)
- ¹⁸Ibid..
- ¹⁹<http://www.eastasiaforum.org/2016/06/04/is-modis-middle-east-diplomacy-enough/>
- ²⁰<http://thewire.in/13224/its-time-for-india-to-start-looking-west-again/>
- ²¹<http://www.mainstreamweekly.net/article6553.html>
- ²²<http://www.hindustantimes.com/analysis/india-responds-to-a-changing-west-asia/story-4fd8f0lEiGs7hriWiwAInN.html>
- ²³Ibid.,
- ²⁴http://www.idsa.in/system/files/IB_IndiaLookWestPolicy.pdf
- ²⁵http://idsa.in/KeynoteAddressIndiaandIrananenduringrelationship_nirupamaroy
- ²⁶Ibid.,
- ²⁷<http://www.mea.gov.in/distinguished-lectures-detail.htm?492>
- ²⁸Ibid.,
- ²⁹Ibid.,
- ³⁰Ibid.,
- ³¹Ibid.,
- ³²Ibid.,
- ³³http://www.worldenergyoutlook.org/media/weowebsite/2015/IndiaEnergyOutlook_WEO2015.pdf
- ³⁴<https://www.linkedin.com/pulse/link-west-india-gulf-symbiosis-school-of-international-studies>
- ³⁵<https://www.brookings.edu/blog/order-from-chaos/2015/06/16/modi-looks-west-india-and-the-middle-east/>
- ³⁶<http://recap.asia/Analysis-detail.php?aid=3>
- ³⁷<http://www.livemint.com/Opinion/4isSrauk5g70WNVcehBPVN/Securing- Indias-energy-interests-in-West-Asia.html>



Sustainable Development and Ecology in Recent Times: A Global Concern & Policy Options

Dr. Pradip kumar Parida

This paper is a humble attempt to critically examine the strategic issues involved in the domain of sustainable development, as far as the whole world is concerned and the role of India in that context. As a matter of fact, the models of development followed across the globe give importance to economy at the cost of ecology and the unmindful utilization of natural resources, i.e. forest, river, water, soil, clean air, which is massive loss to human civilization, particularly its future generation. This is not only a problem for the western developed countries but also the developing countries are going to be equally affected by this process. As a result of which, the impact of climate change is clearly visible on this earth. All of us have to address common concerns of the humanity. This paper tries to examine the possibility of finding any solution to the current situation of global political economy as well as the role of India there in.

Introduction:

In the contemporary world, every conscious citizen of the country talk about 'sustainable development', which has become a buzz word in the discourse of social science, natural science, policy makers, planners, social activists, universities, international bodies like UNO even the funding agencies like World Bank etc. It differs according to situation, political ideology, level of economic development, which side of the globe a particular country belongs to, and what are the benefits a country/ individual gains by using/ misusing the terminology. However the meaning of this most discussed word is not same to all the above mentioned organization and individuals. None the less it is imperative to come to certain point where we can create a bottom line to understand the meaning, basic features and characteristics as well as issues involved with this concept.

In general one can say that 'Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. Which means the resources- be it natural or otherwise of this earth or even outside of earth should be utilized in such a way which will create problems for the generations yet to come? Hence we must consider the needs of future generations also, how they are going to survive on this earth. In other words, it contains within it two key concepts, (i) the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given, and (ii) the idea of 'limitations' imposed by the state of technology and social organization on the environment's ability to meet present and future needs. Hence, from that analysis, one can argue 'sustainability can be defined as the practice of maintaining processes of productivity indefinitely , be it natural or manmade, by replacing resources used with resources of equal or greater value without degrading or endangering natural biotic systems. Sustainable development ties together concern for the carrying capacity of natural systems with the ecological, social, cultural, spiritual, ethical, political, and economic challenges encountered by the human civilization. It is the study of the issues of impact related environmental science and human society in all direction. Its genesis can be traced to sustainable forest management which was developed in Europe during the seventeenth and eighteenth centuries. In response to a growing awareness of the depletion of timber resources in England, John Evelyn argued that '*sowing and planting of trees had to be regarded as a national duty of every landowner, in order to stop the destructive over-exploitation of natural resources*' in his 1662 essay *Sylva*. This in turn influenced people like Gifford Pinchot, first head of the US Forest Service, whose approach to forest management was driven by the idea of wise use of resources, and Aldo Leopold whose land ethic was influential in the movements related to ecology in 1960s.



Following the publication of Rachel Carson's *Silent Spring* in 1962, the developing environmental movement drew attention to the relationship between economic growth and development and environmental degradation. Kenneth E. Boulding in his influential 1966 essay *The Economics of the Coming Spaceship Earth* identified the need for the economic system to fit itself to the ecological system. As natural resources are limited, its un mindful utilization might lead to crisis in our society. All types of resources, i.e. water, air, forest, timber, conventional sources of energy, power, all these are required for people in all ages. Hence if we will explore the possibility of conserving something for the future, that may not lead to crisis. With this presumption, the connotation of 'sustainable development' get prominence in the lexicon of natural and social science, technology & public policy in the 1960's & 70's. Gradually it was reflected in all the international forums.

One of the first uses of the term sustainable in recent time was by "Rome Club" in 1972 in its monumental report titled '*the Limits to Growth*', written by a group of scientists led by Dennis and Donella Meadows of the Massachusetts Institute of Technology. Describing the desirable 'state of global equilibrium', it argued 'We are searching for a model output that represents a world system that is sustainable without sudden and uncontrolled collapse and capable of satisfying the basic material requirements of its entire people'. In 1980, the International Union for the Conservation of Nature (IUCN) published a world conservation strategy that included one of the early mentions on 'sustainable development' as a global priority and coined this terminology also. Subsequently, the United Nations World Charter for Nature raised five principles of conservation by which human conduct affecting nature is to be analyses and properly maintained. In 1987, the United Nations World Commission on Environment and Development released the report *Our Common Future*, commonly called the *Brundtland Report*. This report mentioned about definitions of sustainable development.

In 1992, the UN Conference on Environment and Development published the *Earth Charter*, which

outlines the building of a just and equitable, ecologically balanced global society in the 21st century. The action plan Agenda 21 for sustainable development identified information, integration, and participation as key building blocks to help countries to follow certain models and policy options which recognizes these interdependent pillars. It recognizes that everyone is a user and provider of information. It stresses the need to change from old sector-centered ways of doing business to new approaches that involve cross-sectoral co-ordination and the integration of environmental, political, socio-cultural concerns into all development processes. Agenda 21 emphasizes that broad public participation of all people of all countries across the globe is a fundamental prerequisite for achieving this objective. The *UN Millennium Development Goal* (MDG) identified principles and treaties on sustainable development, including socio-economic development having ecological concern. Sustainable development is a systems approach to growth and development and to manage natural, produced, and social capital for the welfare of the current generation and future generations. Hence the term 'sustainable development' mentioned by United Nations includes issues associated with land development and broader issues of human development such as education, public health, and minimum standard of living.

The concept of the SDGs was born at the United Nations Conference on Sustainable Development, Rio+20, in 2012. The objective was to produce a set of universally applicable goals that balances the three dimensions of sustainable development: environmental, social, and economic. The SDGs replace the Millennium Development Goals (MDGs), which in September 2000 rallied the world around a common 15-year agenda to tackle the indignity of poverty. The MDGs established measurable, universally-agreed objectives for eradicating extreme poverty and hunger, addressing public health issues, providing adequate food to all for basic sustenance, affordable housing for all irrespective of income and expanding educational opportunities to all children, bring gender parity among other development imperatives.

The MDGs drove progress in several important areas:



- Poverty & hunger
- Access to improved sources of water
- Primary school enrollment
- Child & Mother mortality (IMR & MMR)

With the unfinished tasks for millions of people-we need to go the last mile on ending hunger, achieving full gender equality, improving health services and getting every child into school. Now we must shift the world onto a sustainable path. The SDGs aim to do just that, with 2030 as the target date. This new development agenda applies to all countries, promotes peaceful and inclusive societies, creates better jobs and tackles the environmental challenges of our time-particularly climate change. Hence we must ensure that SDGs must finish the job that the MDGs started without leaving anybody.

What are the Agenda for Sustainable Development?

At the Sustainable Development Summit on 25 September 2015, UN Member States adopted the 2030 Agenda for Sustainable Development, which includes a set of 17 Sustainable Development Goals (SDGs) to end poverty, fight inequality and injustice, and tackle climate change by 2030. The SDGs build on the Millennium Development Goals (MDGs), eight anti-poverty targets that the world committed to achieving by 2015. The MDGs, adopted in 2000, aimed at an array of issues that included slashing poverty, hunger, disease, gender inequality, and access to water and sanitation. Enormous progress has been made on the MDGs, showing the value of a unifying agenda underpinned by goals and targets. Despite this success, the indignity of poverty has not been ended for all. The new SDGs, and the broader sustainability agenda, go much further than the MDGs, addressing the root causes of poverty and the universal need for development that works for all people. UNDP document noted: "*This agreement marks an important milestone in putting our world on an inclusive and sustainable course. If we all work together, we have a chance of meeting citizens' aspirations for peace, prosperity, and wellbeing, and to preserve our planet.*" The SDGs will now finish the job of the MDGs, and ensure that no one is left behind. All 17 SDGs are connected to UNDP's Strategic Plan focus areas: sustainable development, democratic governance and peace

building, and climate and disaster resilience. Goals Number 1 on poverty, Number 10 on inequality and Number 16 on governance are particularly central to UNDP's current work and long-term plans. Having an integrated approach to supporting progress across the multiple goals is crucial to achieving the SDGs, and UNDP is uniquely placed to support that process.

What is UNDP's Role in this Context?

UNDP can support countries in three different ways, through the MAPS approach: mainstreaming, acceleration and policy support.

- Providing support to governments to reflect the new global agenda in national development plans and policies. This work is already underway in many countries at national request;
- Supporting countries to accelerate progress on SDG targets. In this, we will make use of our extensive experience over the past five years with the MDG Acceleration Framework; and
- Making the UN's policy expertise on sustainable development and governance available to governments at all stages of implementation.

Collectively, all partners can support communication of the new agenda, strengthening partnerships for implementation, and filling in the gaps in available data for monitoring and review. UNDP must lead the preparation of Guidelines for National SDG Reports which are relevant and appropriate for the countries. UNDP is deeply involved in all processes around the SDG roll out. The guidance and tools being developed will be shared as they become available. UNDP is trying to bring extensive programming experience to bear in supporting countries to develop their national SDG efforts.

Politics

Some studies reflects sustainable development indicators, are scientific constructs whose principal objective is to inform public policy-making. The International Institute for Sustainable Development has similarly developed a political policy framework, linked to a sustainability index for establishing measurable entities and metrics. The framework consists of six core areas, international trade and investment, economic policy, climate change and energy, measurement and assessment, natural resource management, and the role of communication



technologies in this context. The United Nations Global Compact Cities Programme has defined 'sustainable political development' in a way that broadens the usual definition beyond 'states' and 'governance'. The 'political' is defined as the domain of 'practices and meanings' associated with basic issues of social power as they pertain to the organization, its structure, authority, legitimacy of a social life held in common. This definition is in accord with the view that political change is important for responding to economic, ecological and cultural challenges. It also means that the politics of economic change can be addressed. It has listed seven sub domains in the context of politics:

- 1.Organization and governance
- 2.Law and justice
- 3.Communication and critique
- 4.Representation and negotiation
- 5.Security and accord
- 6.Dialogue and reconciliation
- 7.Ethics and accountability

Culture

Working with a different emphasis, some researchers and institutions have pointed out that a fourth dimension should be added to the dimensions of sustainable development, since the triple-bottom-line dimensions of economic, environmental and social do not seem to be enough to reflect the complexity of contemporary society. In this context, the Agenda 21 for culture and the United Cities and Local Governments (UCLG) Executive Bureau lead the preparation of the policy statement "Culture: Fourth Pillar of Sustainable Development", passed on 17 November 2010, in the framework of the World Summit of Local and Regional Leaders- 3rd World Congress of UCLG, held in Mexico City. Although some which still argue that economics is primary, and culture and politics should be included in 'the social'. This document has provided a new perspective and points to the relation between culture and sustainable development through a dual approach: developing a solid cultural policy and advocating a cultural dimension in all public policies. *The 'circles of sustainability approach' distinguishes the four domains of economic, ecological, political and cultural sustainability.*

Other organizations have also supported the idea of a fourth domain of sustainable development. The Network of Excellence 'Sustainable Development in a Diverse World', sponsored by the European Union, integrates multidisciplinary capacities and interprets cultural diversity as a key element of a new strategy for sustainable development. The Fourth Pillar of Sustainable Development Theory has been referenced by executive director of IMI Institute at UNESCO Vito Di Bari in his manifesto of art and architectural movement Neo-Futurism, whose name was inspired by the 1987 United Nations' report Our Common Future. The 'Circles of Sustainability' approach used by Metropolis defines the (fourth) cultural domain as practices, discourses, and material expressions.

Ecology vs. Economy

The ecological stability of human settlements is part of the relationship between humans in a given society along with their natural, socio-cultural, political and ecological surroundings. Also termed 'human ecology', this broadens the focus of sustainable development to include health or public health. Fundamental human needs such as the availability of good quality consumable air, food, water, houses are the ecological foundations for sustainable development; addressing public health risk through investments in ecosystem services can be a powerful and transformative force for sustainable development which extends to all species. Environmental sustainability concerns the natural environment and how it endures and remains diverse and productive. Since natural resources are derived from the environment, the state of air, water, and the climate are part and parcel of it. The IPCC Fifth Assessment Report outlines current knowledge about scientific, technical and socio-economic information concerning climate change, and lists options for adaptation and mitigation. Environmental sustainability requires society to design activities to meet human needs while preserving the life support systems of the planet. This, for example, entails using water sustainably, utilizing renewable energy, and sustainable material supplies. The impact of climate change is visible in all the spheres across the globe. Global warming has embedded in all the spheres of development domain using resources.

