

Incredulity towards Global-Warming Crisis: Ecocriticism in Ian McEwan's *Solar*

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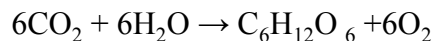
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ABSTRACT

Incredulity towards the metanarrative emerged from discourses conducted during various international summits on global warming is one of the themes that can be underlined in the light of ecocriticism in Ian McEwan's Solar. Considering one of the most common interactions between nature and culture and assuming a parallelism between natural and artificial photosyntheses, this enquiry attempts to demonstrate that imitating nature might have been one of the techniques suggested satirically in Solar for overcoming this global disaster if science had been at the service of humanity and scientists had not been so egotistical. This study exposes how these money-minded scientists and their sciences do not let these universal congregations become practical and efficient for a world caught in global warming predicament.

Keywords: ecocriticism; global warming; artificial and natural photosyntheses; metanarrative; satire

INTRODUCTION



“So come on. Tell me. Let’s hear you apply Heisenberg to ethics. Right plus wrong over the square root of two. What the hell does it mean? Nothing!” (McEwan 2010, pp.106-107). This is the outlook of the renowned scientist Michael Beard, the Nobel Prize winning protagonist of Ian McEwan’s novel *Solar* (2010), who in reaction to the challenging statement of Meredith, a novelist who believes in the applicability of scientific formulae to explain ethical situations, mocks the compatibility of scientific approaches to ethical and literary discourses. This sentence in the middle of *Solar*, a novel that evidently revolves around the scientific theme of artificial photosynthesis, reveals an unbridgeable gap between the focaliser’s worldview and that of the author. Writing his novel on a serious environmental predicament from Beard’s point of view enables McEwan both to invalidate a cynical scientist’s belief in the superiority of science over art in terms of universal issues and to insist on the ability of literature, even in its satirical mood, to make the world conscious about this man-made, environmental catastrophe. Besides, in *Solar*, McEwan places a high value on science, but he never authorises his scientist-protagonists to undermine the seriousness of the non-scientific discourse of literature. Showing the shallowness and vanity of people like Joe Rose or Henry Perowne, the science-based protagonists of *Enduring Love* and *Saturday*, McEwan undercuts their worldviews as limited, immature and incomplete. His inclination to write fiction on scientific issues is not because he is an ardent advocate of rational discourse of science; rather

it is because he considers this thematic concern capable of magnifying the valuable role of literature in man's life.

Depicting the failure of a scientist in competing against global warming by his plagiarised artificial photosynthesis project, *Solar* undoubtedly spotlights the conceit behind the modern scientific belief in the ability of man to imitate nature to stop its further man-initiated destruction of environment. *Solar* is an indication of the absurdity of the discussion on global warming in contemporary international gatherings: a futile discourse that gives birth to sort of metanarrative not immune to incredulity. The novel shows that controlling global warming is nowadays an invalid metanarrative. In fact, this invalidity rises because of the impracticality of international summits and a lack of universal will for eradicating this global turmoil. Of course, this is not McEwan's first experience in expressing his incredulity towards various metanarratives dominated the contemporary world. For instance, as I discussed in another article, McEwan in his earlier novel, *Saturday*, "lays bare the simulacrum-oriented aspect of the western democracy in the contemporary world within almost a single day--15 September 2003" (Habibi 2013, p.128). Indeed, McEwan in *Saturday* raises serious questions about the nature and the function of democracy designed by the West for developing countries like Iraq.

This distrust in the international, scientific congregations conducted by climatologists is reminiscent of the postmodern undermining of science. The postmodern theorists like Lyotard insist that science *per se* in the postmodern milieu has been tilted to 'performativity'. In other words, these gatherings of specialists are no longer organised towards the fulfilment of universal human goals since, according to Lyotard, the postmodern knowledge is valued only in respect to its "efficiency and profitability in a market-driven global economy" (*qtd. in* Malpas 2003, p. 28). Consequently, *Solar* is a portrayal of the endeavours of this new science to sustain its powerful status in the social and political system. As Lyotard says, "the state spends large amounts of money to enable science to pass itself off as an epic: the State's own credibility is based on that epic" (1984, p.28). *Solar* is then an account of the increasing incredulity towards the legitimacy of the 'epic' of the international summits aimed at solving cosmic disastrous issues such as global warming. Focusing on this current terrible environmental predicament, *Solar* reveals that such international gatherings are doomed to failure since their major incentive is selfishness and personal benefits. Certainly, such underlying ego-centric mentalities can never save the world and ensure man's future; they just accelerate the speed of the global ecological crisis.

SOLAR AS AN ECO-FICTION

Approaching *Solar* with an eye on photosynthesis brings into play some fundamental premises of both ecocriticism and literary theory and indicates the possibility of their parallelism. The contention in this paper relies on a combination of Estok's and Glotfelty's ecocriticism. For Glotfelty, ecocriticism is mainly "the interconnections between nature and culture, specifically the cultural artifacts of language and literature"; it has "one foot in literature and the other on land; as a theoretical discourse, it negotiates between the human and the nonhuman." (Glotfelty and Fromm 1996, p. xix). In this study, Glotfelty's definition of ecocriticism can be dovetailed to Estok's who argues that ecocriticism is:

not simply the study of Nature or natural things in literature; rather, it is any theory that is committed to effecting change by analysing the function—thematic, artistic, social, historical, ideological, theoretical, or otherwise—of the natural environment, or aspects of it, represented in documents (literary or other) that contribute to material practices in material worlds. (pp. 16-17)

Estok's view on ecocriticism, in fact, implies what Glotfelty refers to as distinguishing critical approach since Estok generally treats 'the world' as "synonymous with society—the social sphere" and "exclusively examines the relations between writers, texts and the world" (Glotfelty and Fromm 1996, p. xix).

In a way, *Solar* is an example of 'ecofiction', a novel that highlights moral issues raised out of human interactions with nature while it attempts to articulate ecological concern over the plight of global warming. The interest in *Solar* is not exclusive to the literary community; it moves to a larger biospheric community because it deals with ecology to tell the reader how nature has been destroyed due to man's sheer selfishness. McEwan magnifies the ethical issues vis-à-vis this anthropo-centric predicament not only to jolt his readers that modern natural disasters are directly connected to moral degeneration, but also to fulfil his own share to save the natural world. Indeed, in the modern cultural devastation of nature, McEwan does not wriggle out of his social and ethical commitment; on the contrary, he considers this global disaster as the only worthy theme for his artistic career. Dismayed at man's destructive effect on nature he moves from microcosmic issues in his early novels such as *Enduring Love* and *Atonement* to macrocosmic phenomena in *Amsterdam* and *Saturday*. *Solar* is almost the epitome of the macrocosmic extreme of his thematic spectrum so much so that some critics consider him more than being an artist: he is more "a public intellectual—an eminently sane and reasonable man who happens to be a novelist but is finally more concerned to play a broader, edifying role" says Smee (2010).

Not just a typical novelist who only depicts the beauties of man and nature, McEwan is obsessed with the beauty that may emerge out of the abstract realities of the fundamental natural laws and logical propositions and mathematical equations. His extensive use of mathematical or other scientific jargons such as logarithmic complexity, variable, ratio, magnitude, fraction, angles, equilibrium or gradient in *Enduring love* demonstrate his engrossment with "a state of mathematical grace" (McEwan 1997, p.3). The same predilection is an idiosyncrasy in Michael Beard's character when he remarks, "physics was free of human taint, it described a world that would still exist if men and women and all their sorrows did not" (McEwan 2010, p.11).

A science-obsessed writer who cares a lot about environment, McEwan sets to remind his science-stricken contemporaries of their dependence on nature: what they have simply forgotten in their vanity about the sovereignty of man over nature. The association between science (in this case physics) and the dry, dusty atmospheres where Beard works—outside Reading in England as the first head of the Centre and in the desert of New Mexico in America where he launches his plagiarised solar project—metaphorically connotes the barrenness and susceptibility of science. The failure of both the nature-oriented projects of designing a wind generator and trapping solar power carried out at these places confirms this association. *Solar*, then, is an image of the devastated near future of the world if a real, practical decision fails to be made. In a satirical way, the novel exposes the cause of the impracticality and unreality of many decisions made in various international summits to suggest the possible effective solution. Before concentrating on how the two major synthesises (natural and artificial) help McEwan substantiate the theme of the novel, the following section shows the divergence this speculation from other existent critical readings of *Solar*.

Aware of the negative impact of some scientific inventions on nature, McEwan never invalidates thoroughly the truth-revealing value of science. Instead he duplicates the scientific patterns and formulae which rule the chaotic world in logical statements to construct his literary artifice. In this sense he can be called a novelist who is able to apply 'equation' between science and literature: one who commutes in the land equations via equal sign between the *knowns* and *unknowns*. His protagonist Beard is a character who is also in

love with equation which aligns science with science. When he was a twenty-one-year-old physicist mesmerised by the Dirac Equation, $i\gamma.\delta\psi = m\psi$, Beard said: “A thing of pure beauty, that equation, one of the greatest intellectual feats ever performed, correctly demanding of nature the existence of antiparticles and placing before the young reader the wide horizons of the ‘Dirac sea’”(2010, p. 57).

In *Solar*, along with the central topic of global warming and its relation with scientific institutes and industrial sponsors, McEwan touches upon a series of various topics such as the witch-hunting nature of mass media, the interface of gender and scientific pursuits, the compatibility of ethics and science, self-advantage and social responsibilities, politicising the critical issue of global warming and the feasibility of artificial methods for endless energy supplies. Ron Charles in his review on *Solar* remarks that the novel’s “real subject is the slippery nature of truth and the very fallible people who claim to pursue it.” James Heartfield in his notes *The power of Solar* points out, “one of the underlying themes in *Solar* is of undeserved success, built on plagiarism, of individuals always on the verge of being uncovered as a sham. This rehearses one of the things that McEwan himself has been criticised for” (2010). Reviewers have also partially scrutinised *Solar* from the moral perspective. For instance, emphasising that *Solar* is not a standard whodunit, Jennie Yabroff, explains that its most intriguing quality is “the way it subverts the reader's assumption that no crime can go unpunished, that justice must be served.” She justifies her observation thus: “we live in a culture where moral ambiguity often seems more threatening than violence itself, and where much of our art tells us that good triumphs over evil, even if real life suggests otherwise” (2010). Despite his approval of its moral dilemma, Geoff Nicholson finds fault with it: “satirists always have to be moralists at some level, but the moral dilemmas that occur in ‘Solar’ never seem quite real or urgent enough” (2010). These readings of the novel would not certainly get the acknowledgement of McEwan, who in an interview with Mick Brown asserts, “The thing that would have killed the book for me, I'm sure, is if I'd taken up any sort of moral position, I needed a get-out clause. And the get-out clause is, this is an investigation of human nature, with some of the latitude thrown in by comedy” (2010).

A PORTRAIT OF PHOTOSYNTHESIS IN *SOLAR*

The significance of the natural and artificial photosyntheses in *Solar* is one of the major aspects of the novel which has not attracted enough attention. Indeed, along with other set-pieces portrayed in *Solar*, the ecocritical value of these two processes, particularly for McEwan who is preoccupied with global warming, has to be properly elaborated. The natural photosynthesis, the world’s massive biochemical operation, is an equation whose systematic orderliness and utmost precision offer McEwan an unparalleled opportunity to control the chaos ‘within’ the text created by flamboyant Beard, as well as to anchor the anarchic state of global warming ‘without’ the text. There is some clear evidence on the thematic level that such process is the backbone of the novel. Acting as McEwan’s mouthpiece, it is Tom Aldous, Beard’s post-doctoral assistant, who attracts attention to the potential of photosynthesis to solve global warming and energy crisis, “We need to take another look at photosynthesis, see what we can learn” (Aldous 2010, pp. 46-47). Taking up the late Aldous’s project of designing and constructing a solar panel by imitating natural photosynthesis, Beard, later on, confirms the absolute reliability of this modelling by asserting that natural photosynthesis has been “perfected by evolution during three billion years of trial and error” (2010, p. 142). A natural process whose reactant entities (carbon dioxide, water and sunlight) are enormously available, natural photosynthesis can actually yield what the world is thirsting for: carbohydrates and oxygen.

It is based on this foregrounding natural phenomenon that *Solar* reveals its ‘eco-friendly’ mission: introducing a speculative artificial photosynthesis which both captures the CO₂ of the atmosphere and produces green energy. The narrator does not plunge into this layer right from the beginning of the novel. Instead, the narrative commences with a pathetic report of the ignoble life of the Nobel Prize winner Michael Beard including both his domestic and professional CVs. From this perspective, *Solar* resembles *Atonement*, *The Innocente*, *Saturday*, or *Black Dogs* where major character precedes theme, that is, the narrative just begins with the name of the protagonist in the very first line of the opening page.

Introduced at the very beginning of the story, Beard is the ‘noblest’ character among the host of unprincipled, disreputable protagonists McEwan is known to create. Indulging in innumerable girlfriends, Beard is disloyal to each of his five wives and falsely accuses Rodney Tarpin, the innocent lover of his fifth wife, of unintentionally killing Aldous who had an affair with his fifth wife. He steals Aldous’s genius idea for stopping global warming via artificial photosynthesis in an attempt to commercialise it. To quote Robson, Beard “knew much about light, but about forms of public expression in contemporary culture he was in the dark” (2010). Failing in his domestic, social and professional life, he is definitely an antihero; and it is foreshadowed and manifested when Beard uses a fragmented quotation from Milton’s description of the fall of Hephaestus in Book I of *Paradise Lost* to lure the English student Maisie (his first divorced wife):

...From morn
To noon he fell, from noon to dewy eve,
A summer's day; and with the setting sun
Dropped from the zenith, like a falling star [..](p.28)

The comparison drawn between Beard and the falling Hephaestus sounds suitable from another aspect and that is the profession of both of them. Hephaestus is the god of fire, metalwork and craft; he crafted much of the magnificent equipment of the gods; almost any finely-wrought metalwork imbued with powers that appears in Greek myth is said to have been forged by Hephaestus. Beard on the other hand is a master craftsman of theoretical physics whose vocation has to do with metalwork, fire. In fact, the solar panel that Beard designed to trap solar power is an indication of his craftsmanship.

The idea of artificial photosynthesis begins to gel in Beard’s mind just when he gets acquainted with Aldous who enthusiastically appreciates Beard’s innovative idea that is a mathematical proposition called ‘the Beard-Einstein Conflation’. This proposition brings the Nobel Prize in Physics for Beard. This conflation, explains Mitchison, is in fact “an extension of ideas in Einstein's famous 1905 paper on the photoelectric effect, which gives a quantum explanation for the emission of electrons when light strikes a suitable material” (2010). This innovative conflation, finally, leads Beard to his photovoltaic discovery which in turn paves the way for artificial photosynthesis and the generation of electricity out of sunlight.

As the opening section of the novel reflects his life at the turn of the twentieth century, Beard does not have any aspiration for producing electricity through artificial photosynthesis. Instead he lives mainly on his lectures on quantum field theory at the Royal Geographical Society, his radio and TV discussions, etc. However, his university salary, lectures and media appearances fees are never satisfactory. Fortunately for him, by the end of the twentieth century, Tony Blair’s government “practically rather than merely rhetorically” gets “engaged with climate change and announces a number of initiatives which one of them is the Centre” (McEwan 2010, p.22). Being appointed as the figurehead of the National Centre for Renewable Energy for a year, he cannot devote himself to The Centre’s large-scale project for development of the WUDU (Wind Turbine for Urban Domestic Use) since his

scepticism encourages him to reject it as an expensive and pointless project; he stresses that it “ought to be abandoned, when it was devouring nearly all the budget and growing in complication as it diminished in interest” (McEwan 2010, p.38).

Both Aldous and Beard’s inclination to design a solar panel, which like plant leaf traps the sunlight and utilises it for its photosynthesis, implies the significance of nature in inspiring this fundamental analogy to them. Howarth writes, ecology is a way of communicating with life “through decoding the streams of information that have direction and purpose” (qtd. in Glotfelty and Fromm 1996, p. 77). The very act of assuming a metaphorical parallelism between natural photosynthesis on the extra-narrative level of *Solar* and the artificial photosynthesis on its intra-narrative level can be assumed as an apparatus for interpreting one of those messages. In fact, the interaction between nature and culture leads to the emergence of this analogy in *Solar* which has thematically ecological significance. Besides, McEwan here shows his ability in ‘fictionalizing nature’ while he has already been master of ‘naturalizing fiction’.

McEwan’s application of the metaphorical association of natural and artificial photosynthesis is justifiable on two grounds; firstly, metaphor is an “ontological mapping across conceptual domain.” (Lakoff 1993, p. 208). In their book *Metaphors we live by*, he and Johnsen argue “our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphorical in nature” (2003, p.3). Secondly, metaphor is an effective device to assist ecology in finding, to use Howarth’s words, “its voice by studying the relations among the properties of species, their distribution across space, and their adaptive course in time” (qtd. in Glotfelty and Fromm 1996, p.75). This metaphorical parallelism, hence, is not a decorative device at the periphery of language; on the contrary, it helps explain how the juxtaposition of two heterogeneous phenomena - one from culture, another from nature - enables McEwan to scrutinise the entire international enterprise on global warming. After all, it is metaphorical parallelism that inspires Aldous to think and Beard to design a generator whose energy is provided by the solar panels working based on photosynthetic mechanism.

Applying the idea of artificial photosynthesis for designing a full-scale power plant absorbs Beard’s attention just after Aldous’s accidental death. Indeed, the development of this speculation becomes the focal point more or less in the last section of *Solar*, 2009, when, Beard demonstrates the result of his nine-year development of Aldous’s brainchild. Until now, Beard has been a dissenter from the temple which the environmentalists have made out of the “familiar litany of shrinking glaciers, encroaching deserts, dissolving coral reefs, disrupted ocean currents, rising sea levels” (McEwan 2010, p.49). His scepticism about the severity of global environmental issues leads him to the conclusion that people ‘routinely’ refer to the planet ‘as proof of thinking big’. It is only when he calculates his own benefit and self-advancement that he comes to terms with the burning issue of global warming.

To persuade the pension-fund managers to invest in the project, he even recites Aldous’s parable, the illustrative story he narrates to Beard to convince him of the simplicity and accessibility of the solution to the man’s most immediate environmental problem: it is the story of a guy stuck in a forest and dying of thirst while it is raining. Instead of just opening his mouth and drinking the rain, the man starts cutting down the trees to drink the sap because he has only an axe and is good at chopping down trees. Aldous believes, “that rain is our sunlight,” with “sweet rain of photons” so “all we have to do is hold out our cups” (McEwan 2010, p. 37).

Such a parable serves on two levels in *Solar*. On the one hand, it helps Aldous persuade the cynical people of nature’s potential self-protective mechanism if duly employed and reminds them of their reason-stricken mind and the “ultimate mover” in the universe: “God’s greatest gift to us is surely this, that a photon striking a semiconductor

releases an electron” (McEwan 2010, p.36). On the other hand, it provides the opportunity for McEwan to express his view on the mutual validity of science and ethics. Not only can science’s method and concepts be helpful in elaborating ethics but ethical discourse is also capable of shedding light on scientific dilemmas. So, in contrast to those like Beard who theoretically regard only science as truthful and reliable and disregards ethics thoroughly in practice, McEwan suggests a possibility of their interdependence even the essential dependence of science on ethics.

This possibility can be traced in other layers of the novel, for example, in the contradictory nature of Beard’s project. The designed solar panels operating on artificial photosynthesis require a hotter world to fight the disastrous global warming; such an interesting, thought-provoking situational irony symbolically implies that the two usually separate discourses of science and ethics can be fused together. Nevertheless, the predicaments Beard encounters in fulfilling this project such as the huge loss of investment and finally the smash of the resultant solar panels by Tarpin suggest that such a fusion is doomed to failure if modern rational man, portrayed in the characterisation of Beard, never accepts the truth of ethics. Indeed, the destruction of solar panels is a straightforward ramification of science for self-interest’s sake not for the sake of humanity: a viewpoint which legitimises everything, even unethical or amoral acts. The domination of this definition of science and scientist manifested in Beard’s characterisation legitimises making profit even out of global miseries. Beard, to some extent comes to recognise the truth of the apocalyptic claims of the environmentalists on increasing global warming, but he never let this recognition usher him to his ethical responsibility and invariably he only considers his personal benefit; in his quarrel with Toby Hammer, his American partner: “Here’s the good news. The UN estimates that already a third of a million people a year are dying from climate change... Toby, listen. It’s a catastrophe. Relax!” (McEwan 2010, p. 298). However, nowhere in the novel does he come to notice the truth of ethics and its importance for the human survival.

Although the details of Beard’s version of photovoltaic project are left vague, its various stages explained here and there throughout the novel leaves no doubt that it is modelled on natural photosynthesis. Imitating the structure of a leaf, Beard designs such panels which house the tubes containing “the light-harvesting semiconductor, the aqueous electrolytes and the membrane of plexiglas on top, with a base of conducting stainless steel” (McEwan 2010, p. 292). To work, the panels need the scorching sunlight to split water into hydrogen and oxygen. Then the produced gases get compressed and stored in massive tanks. Oxygen and hydrogen are recombined to drive the fuel-cell generators. Beard even determines the location of the project to be on the land near Lordsburg in the American South-West since there is “more sunshine hours per year” and “a reliable water source” (p.261).

However, Beard does not appear to be a responsible scientist who cares about nature and his fellow creature’s survival. To portray his carelessness, McEwan has interlaced the description of the progress of his artificial photosynthesis project with a sketch of his gluttonous habits, sexual promiscuity and his opportunistic efforts to cash in on global warming in the last two thirds of *Solar*. This *mise en scene* exposes Beard’s disqualification to carry out his eco-friendly project and triggers the avalanche of Beard’s miseries in the final scene that is episode 2009. In this closing episode, in spite of his success in building and installing the panels, Beard faces an unavoidable fiasco in this climactic scene just before the grand opening of his solar project. Here all those deceived and mistreated by Beard converge to destroy him. Barnard, an advocate acting for both the Centre and Aldous’s father, asks Beard to cancel the project’s demonstration if he does not want to be charged with ‘theft of intellectual property’. Tarpin, after undeservingly suffering an eight-year imprisonment for the charge of murdering Aldous, gets to New Mexico for retaliation. Melissa, Beard’s last

girlfriend, along with her daughter from her affair with Beard, rushes to see Darlene, Beard's Lordsburgian sexual partner who is going to marry Beard.

Among Beard's predicaments on the eve of unveiling his new plagiarised invention, Tarpin's vengeful act of breaking the panels with a sledgehammer can be a metaphor for what McEwan thinks about global warming gatherings and policies. The sledgehammer is a concretisation of man's egotistical behaviour which shatters every kind of 'panel': either the panels of experts in international summits or Beard's solar panels. This sledgehammer of man's self-interest has been used only for destruction throughout *Solar*, though it is a builder's device. Beard in the beginning of the novel sets the scene with sledgehammer to show that Tarpin has killed Aldous and at the end of the novel this sledgehammer 'kills' Beard's grand project too.

COMBATING GLOBAL WARMING BY SATIRE IN *SOLAR*

Apart from portraying man's selfishness through depicting Beard's broken panels by sledgehammer, McEwan represents another aspect of human's egoism in a comic way by describing the 'boot room' of the ship that took them to the North Pole. In fact, the ineffectiveness of international meetings and the inadequate commitment of the so-called climate-conscious communities loom large in the boot room scene of *Solar*: one of the rooms of the ship in which Michael Beard and other twenty climate-conscious artists and scientists aboard are supposed to leave their outdoor clothing hanging on the personal designated pegs. The boot room is actually the concretisation of the vanity of the conscious class of society in the face of global warming. The interpretation of the comic aspects of the novel as a mocking treatment of man's ability and desire to save the world exemplifies the attempt to form a meaning out of the multifarious structure of the novel.

The boot room is soon in hopeless disarray, with everyone leaving their stuff chaotically all over the place and stealing each other's hats, boots and gloves. As Beard remarks "how were they to save the earth . . . when it was so much larger than the boot room?" (McEwan 2010, p.109). Here the false international ambition to control global warming integrates with the text of *Solar* through a metonymic relation with a boot-room in a ship. Jones refers to this relationship when he says, "Perhaps the answer to the boot-room/climate-change conundrum is to accept that short-term self-interest will always defeat any altruistic attempt to take the long view, and instead of trying to make people be good, look for ways to turn their badness to the planet's advantage" (2010, p.20). The room parallels the inter-subjective space where man interacts with man; it reflects McEwan's idea he expresses in an interview with Mike Brown: "There's something comic about idealism, and our capacity for rational thinking and gathering data and evidence on the one hand, and on the other these little worms of self-interest, laziness and innate chaos" (2010).

Anxious about the critical status of the climate change and eager to strike rational fear into the reader's heart McEwan prefers to be a 'reality maker' rather than a 'myth maker' in *Solar*. To do so, he integrates the detailed reality of the 2009 United Nations Climate Change Conference, commonly known as the Copenhagen Summit, into the end of the novel. As the environment correspondent of the *Guardian* David Adams notes that McEwan "watched the outcome of the Copenhagen Summit in December 'very closely and with some despair' and then went back to his novel, *Solar*, to rewrite a section a few pages from the end" (2010). Adams insists "had the summit produced a successful deal, as McEwan wanted, Beard and his failures would not have fitted in" (2010).

As close correspondence to reality, *Solar* addresses in a nutshell the failure of the Copenhagen Talks on climate change mitigation. The very logo of the Copenhagen Summit

sheds light on the status of Beard in the story. Obvious in the figure below, the logo can serve as a symbol of the chaotic condition of both Beard's life and global climatic condition. As the story goes on, it is Beard's character that complicates the cosmic chaos. So the logo is an 'objective correlative', in T.S. Eliot's sense of the term, to reflect the confusion in both the microcosmic and macrocosmic represented by Beard's internal and external worlds. As McEwan acknowledges "everything has collapsed around him [Beard] and he knows that Copenhagen will be just the place for him. It is where he would be heading to add his confusion to everybody else's" (Adams 2010).



FIGURE 1. The Logo of the 2009 United Nations Climate Change Conference

Built on his firsthand experience in 2005 when he joined twenty-four eminent artists and scientists in the Arctic, McEwan decided to write an 'eco-friendly' novel to witness the effect of climate change. *Solar* depicts Beard undergoing the same excursion to the Norwegian Arctic island of Spitsbergen. Although there are many similarities between Beard's experiences and those of McEwan, the only novelist of this journey, Meredith is McEwan's mouthpiece. Characterising him with a pair of 'rimless glasses' reminiscent of his own, McEwan signals their similarity in point of view. Referring to the 'amoral' climate of the current epoch, Meredith sees the same parallelism between the ecological problems and man's moral deterioration. Having Heisenberg's Uncertainty Principle in mind, Meredith remarks that moral and ecological issues are the mirror of each other: "the more one knew of a particle's position, the less one knew of its velocity, and vice versa, encapsulated for our time the loss of a 'moral compass', the difficulty of absolute judgements" (McEwan 2010, p. 106).

It is through Meredith that McEwan counterpoints Beard's disbelief in the value of art. Calling him a 'gangling novelist', Beard along with many of his cadre denies the functionality of art in addressing the environmental issues and sits 'in silent wonder' failing to recognise that art "in its highest forms, poetry, sculpture, dance, abstract music, conceptual art" has a capacity to "lift climate change as a subject, gild it, palpate it, reveal all the horror and lost beauty and awesome threat, and inspire the public to take thought, take action, or demand it of others" (McEwan 2010, p.107). For him, the effect of art on the disastrous global problems is similar to "demonstrations, [which] like prayers, like totem-pole dances, were fashioned to deflect the course of a catastrophe" (p.108). The irony here is that as a literary art, *Solar* proves the contrary. Although Jones assumes, "there is some pathos in the irony of a novel about climate change pointing out the fruitlessness of attempts to tackle climate change through art" (2010, p.20), *Solar* is a proof to the effectiveness of art in awakening a collective awareness to modern environmental issues.

The link Meredith considers between ethics and ecology gets Beard 'peevish' since he has lost his 'moral compass' long ago when he memorised some parts of Milton's *Paradise Lost* to take Maisie Farmer to bed. Struck by Meredith's frank association of the two discourse of ethics and ecology, Beard makes fun of his use of Heisenberg's theory to detract

himself from its private reflection on the immorality of his own character: “Heisenberg’s Principle would only have application if the sum of right plus wrong divided by the square root of two had any meaning” (McEwan 2010, p.106). Approaching art and science from a satirical point of view, McEwan in *Solar* objects to the artistic inattention to such hazardous situations threatening man’s life.

Following Juvenal's remark, *difficile est satyras non scribere* “it is difficult not to write satire,” (qtd. in Adorno 1951, p. 209), McEwan feels that the best way to express his disapproval of the cultural response to environmental disorder in general and the current global policy in particular is in satirical form, though he is famed for seriousness in his literary career. The integration of some comic scenes in his narrative, such as when Beard’s sexual organ gets stuck in the zipper of his trousers in his jaunt to the North Pole, functions as comic relief tending to add gaiety to his otherwise serious, bleak reflection of the faults of modern society than changing the nature of his work to comedy. “Comedy is the means, for McEwan, not the end” (Anthony 2010). As this critic asserts, McEwan is a type of novelist who hates comic novels because this type of novel for him is “like being wrestled to the ground and being tickled, being forced to laugh” (2010).

In moulding *Solar* in satiric form which has as its protagonist the ridiculous character of Professor Beard that evokes amusement, contempt, scorn, or even indignation in the reader, McEwan goes far than depreciating and derogating the various international summits on global warming. His implicit aim, as he points out in an interview with Alter in *The Wall Street Journal*, is to reconcile “unseriousness” of fiction with “seriousness” of scientific discourse: “The topic of climate change [is] a subject impacted with hard science: physics, climate science, statistics, graphs, measurements—things that are fairly hostile to a novel” (2010).

In fact, the satirical discourse enables McEwan to combine fairly serious, sad and regretful images of ethics, politics and science with comic scenes. William Sutcliffe observes that *Solar* “is both funny and serious, light and dark, morally engaged and ironically detached” (2010). It is a fiction which is not based on the ‘satirist-has-to-be-moralist’ pattern since neither is Beard seen in a moral dilemma nor is there, apart from its oblique condemnation of hypocrisy, pompousness, foolishness, avarice of human race in the context of climate changing, any structural dilemma underlying the novel. McEwan feels that to be a successful novelist, one should not be a moralist, and this is what Mike Brown quoting him emphasises: “the thing that would have killed the book for me, I’m sure, is if I’d taken up any sort of moral position. I needed a get-out clause. And the get-out clause is, this is an investigation of human nature, with some of the latitude thrown in by comedy” (2010). That is why there is no morally good persona in *Solar*.

There are many incidents in the novel to suggest the satirical nature of the novel; that *Solar* is an outright disbelief in global-warming-related policies and summits condemning them for being originated from the individual or national interest in the lucrative aspect of the problem. Beard’s speech to pension-fund managers with the intention to persuade them in investing in his artificial photosynthesis project is one of those events. His philanthropic speech veneered by an altruistic masque is, indeed, highly charged with irony, for instance when he says:

We either slow down, and then stop, or face an economic and human catastrophe on a grand scale within our grandchildren’s lifetime.... And this brings us to the central question, the burning question. How do we slow down and stop while sustaining our civilisation and continuing to bring millions out of poverty? (McEwan 2010, p.206)

Beard’s heated debate on *Women and Physics* with Susan Appelbaum, is another such incident qualifying *Solar* as a satire. An academic lecturer in cognitive psychology, Appelbaum is

Beard's counterpoint. As a psychologist, she is what Beard as a committed scientist should have been: "She was an objectivist, in that she believed the world existed independently of the language that described it, she spoke in praise of reductionist analysis, she was an empiricist and, by her own proud admission, an 'Enlightenment rationalist'" (McEwan 2010, p.192). Such swapping of roles traces the major cause of scientists' failure to find optimal solutions to modern environmental problems in their increasing unbelief in an objective reality.

Another event which indirectly refers to the spuriousness and greediness of the global-warming policy-makers is Beard's stepping behind the curtain at the back of the stage where he is delivering his speech to throw up the nine smoked-salmon sandwiches which he has gobbled down before his lecture. Another significant episode in this regard is where Beard's invitation email to the Copenhagen Summit is juxtaposed with a list of the lavish meal which Beard orders: "orange-coloured cheese, dipped in batter, rolled in breadcrumbs and salt and deep-fried, with a creamy dip of pale green" (McEwan 2010, p.381).

Finally, a microcosm, Beard's life depicted throughout the narrative is the mirror of the macrocosmic environmental disaster. Indeed, as the critical condition of global climate deteriorates, the physical, moral and social conditions of Beard, the typical delegate of eco-protecting forums, collapse in the course of *Solar*. From the initial episode set in 2000 till the last one in 2009, Beard starts doubting his contribution to the world of science. In his 50s, he gets more grossly overweight, and more bereft of any moral or social commitments; he steals and cheats and lies and becomes over-involved in the politicised science. In the last episode, Beard is immensely fat and interestingly enough has developed the symptoms of melanoma: a kind of skin cancer that has its roots in the critical growth of global warming. On the macrocosmic level, Beard's doctor's observation that his melanoma "won't go away just because you don't want it or are not thinking about it" (McEwan 2010, p.328) indicates the terrible climate changes condition and bespeaks the concern of artists like McEwan to strike the public into the emergency of action.

The scope of satire in *Solar* is not restricted to eco-friendly forums, but extends to target the press. He makes this decision because of the similarity between the mass media and art (in our case fiction) in dealing with various issues including global warming; however, employing all the issues, ideas, events, etc. that a novelist utilises for literary creation, the press can never achieve what fiction can since, what the mass media 'cooks' has neither artistic quality nor aesthetic merit: it is mostly tasteful for the masses with their popular culture. In two major incidents in the narrative McEwan satirises what he calls 'very rackets, partisan, sometimes very intrusive' aspect of mass media and the way it view does 'acidify' the raw material they access to; the first incident, which spotlights Beard in media involves the accidental death of Aldous, the lover of Beard's fifth wife. The second one which illustrates the real nature of the mass media is when Beard comments about the differences between male and female brains. The acidic product of the press as McEwan in the interview with Alter in *Wall Street Journal* names is 'indignation': "one of the things they [mass media] love to be is indignant. People might have in the past loved sex; I think they now love indignation more. Indignation seems to thrill. So a media storm is often driven beyond all reason, people taking offense or people huffing and puffing" (2010).

Cocooned in natural and artificial syntheses, the incredulity towards the functionality of international summits on global warming, which has got ossified as a kind of metanarrative in our contemporary era, is one of the major aims behind the creation of *Solar*. Finding an excuse to write a novel of more universal concern (in contrast to his earlier works which dealt more or less with personal, domestic or national subject matters), McEwan writes to make his readers conscious that when there is no strong, collective will for eradicating global disasters, the international gatherings are futile and funny. Like other eco-conscious

authors, McEwan concentrates upon the aetiology of such colossal failures and finds the cause in the utter selfishness of man who takes advantage of science for profitability rather than fulfilling universal, human goals.

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