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*Theoretical/Critical Essay Article*

## **Genetic Engineering, Globalization and the Future of Ecology: An Ecocritical Study of Margaret Atwood's *The Year of the Flood***

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### **Abstract**

*Applying ecocritical perspectives, this study examines and analyzes the impacts of genetic engineering under the dominance of corporate organizations in the era of globalization in Margaret Atwood's fiction *The Year of the Flood*. The intrusion of genetic engineering in the age of globalization has been problematic because of the anthropocentric values of the corporate houses. In this context, this study argues that genetic engineering technology, if goes uncontrolled, is manipulated for corporate profit only, and raises serious risks to global biodiversity by promoting monoculture flora and fauna. Similarly, the study proves that the intense profit-making desire of the corporate world leads to global pandemic threatening the existence of natural organisms including humans. Members of the 'God's Gardeners' in *The Year of the Flood* prepare themselves to be safe from the 'Waterless Flood,' a global pandemic that has been the result of uncontrolled experimentation of genetic engineering on food, animals and drug for corporate houses. The text, however, offers the possibilities of saving lives if genetic engineering is used from humanitarian perspectives. This research helps in understanding the role of economic activities in disturbing the global biodiversity. For the purpose of textual analysis, the study applies ecocritical perspectives of Vandana Shiva, Jeffery M. Smith, Claire Hope Cummings, and others with especial focus on "bioimperialism" as discussed by Shiva.*

**Keywords:** Genetic engineering, globalization, ecocriticism, bio-imperialism, biodiversity, bioethics

### **Introduction**

Margaret Atwood's *The Year of the Flood* presents the dystopian world of genetic engineering in the hand of corporations uncontrolled by the government. With the 'laissez faire' policy of globalization, the corporate houses succeed in spreading genetically modified organisms (GMOs) and the medicinal drugs in the world. Taking the advantage from the lack of humanitarian budget of the government, CorpSeCorps

(Corporation Security Corps), a private company, takes control over the whole government system of the country. With the ambition of making maximum profit, a pharmaceutical company named HealthWyzer inserts genetically modified disease in its medicine. However, the same medicine becomes the causative factor in spreading the 'Waterless Flood,' a global pandemic, killing almost all people on earth. Furthermore, genetically engineered animals like pigoons - hybrid of pig and human splices, rakunk- hybrid of raccoon and skunk, liobam- hybrid of lion and lamb are produced altering natural selection of traits inside the 'Compounds' of the corporations. In contrast, the "God's Gardeners," a group of environmentalists, adopt bioethical lifestyles. The philosophy of living in harmony with nature as adopted by the God's Gardeners contrasts with the philosophy of CorpSeCorps. A comparative study of the philosophies and lifestyle of the God's Gardeners and the CorpSeCorps epitomize the dangers of genetic engineering on the global biotic family if goes uncontrolled.

### **Conflation of Corporate Culture: Ripe Genes, Barren Nature**

Genetic engineering technology has shifted the natural evolution from nature to human mind. This technology has enabled human to design the organisms as per their thoughts by splicing distinct characteristics of diverse organisms. In *The Year of the Flood*, private companies like CorpSeCorps are benefitted in spreading its "colony" of identical flora and fauna throughout the world. The process of expanding the control of international corporations over global natural resources with genetic engineering technology is defined as "bioimperialism" by Vandana Shiva. She explains the term as the "belief that only the knowledge and production of Western corporations need protection" (*Biopiracy* 81). The establishment of the "colony" of the identical flora and fauna has been possible due to the bio-engineering technology.

One of the greatest troubles with genetic engineering is that it takes hold over government system and influence or even control the government for their benefit. Shiva in her seminal essay "Ecological Balance in an Era of Globalization" protests:

Instead of the state regulating the market for the good of society, global economic powers and commercial forces are now regulating the state and society for the benefit of the corporations. Instead of commerce being accountable to state and the society, economic globalization is making citizens and their governments accountable to corporations and global economic bodies. (465)

Taking advantage of the absence of the government budget in humanitarian projects, the corporate houses take over government system. The reason behind the growing power and the role of a private company CorpSeCorp in *The Year of the Flood* is elaborated as: "They'd started as a private security firm for the Corporations, but they'd taken over when the local police forces collapsed for lack of funding, and people liked that because the Corporations paid, but now CorpSeCorps were sending their tentacles everywhere" (25). Corporations, with their money, are able in controlling the government mechanism for their benefit. Genetic engineering (GE) technology has eased corporations in influencing the government on their behalf with their "filthy" money.

It is interesting to note that the concept of hybridity is found to have been evolved from ancient myths. The presence of centaurs and chimera has been the part of mythical tradition. The production of chimera-like organisms has been materialized after the advancement in genetic engineering technology. Concepts of perfect crops, perfect

livestock, and even the fantasy of perfect baby have been evolved in the modern world of genetic engineering. “Soon, some predict, parents will be able to choose many traits – short or tall, cautious or risk taking,” (2) writes Peter Kendall, a science writer. The concept of “eugenics,” that is, judging the qualities of organism by binaries of “good” or “bad,” has been promoted after the emergence of genetic engineering (GE) technology. After the emergence of the genetic engineering (GE) technology, Claire Hope Cummings elaborates: “[t]he eugenic notion that there were “good” genes and “bad” genes, and good and bad traits, and the seductive thought that we actually had a choice between them, began to take hold” (10). The DNA of any organisms constitutes many genes with particular traits. GE technology has enabled the scientists to activate certain genetic traits and mute unwanted traits. Talking about the future of genetic engineering, Michael J. Sandel points out: “The predicament is that our new-found genetic knowledge may also enable us to manipulate our own nature – to enhance our muscles, memories, and moods; to choose sex, height and other genetic traits of children; to improve our physical and cognitive capacities; to make ourselves “better than well” (5-6). This desire of humans for being better than well leads to creating many ‘unnatural’ organisms with the advancement in genetic engineering technology.

The term “splicing” has been popular among the geneticists; however, the consequences of such splicing are beyond human control. The genes of one organism having special “traits” are inserted into the genes of another organism which change its natural and organic traits. For example, to protect the tomato plant from the frost, cold resistant genes from specified Arctic fish were inserted into the genes of tomato. These genetically modified (GM) tomatoes are already in the market enhancing corporations’ desire of introducing profitable varieties (Smith 50). Similarly, pigs were engineered with human genes in 1985 for enhancing faster growth of the animal (47). However, the growth was so extreme that the pig “has a body weight that is more than its leg can carry” (Shiva, *Biopiracy* 33). The outcome of spliced pig shows the uncertainty of GMOs. Presenting the possible outcome of such human splicing, Atwood in *The Year of the Flood* elaborates: “Three huge pigs are nosing around the swimming pool – two sows and a boar. The morning light shines on their plump pinky-grey forms; they glisten like wrestlers. They seem too large and bulbous to be normal. . . . Escapees, they must be, from some experimental farm or other (18). The “large and bulbous” pig resembles the spliced pig discussed by Shiva. The fear of Toby, one of the members of the God’s Gardeners, is heightened seeing these pigs because these are not ordinary pigs, these are “superpigs . . . spliced with human brain tissue” (390). It is the year of Waterless Flood, and Toby is alone in the Rooftop Garden. She shoos the pigs away, but she is terrified that these pigs might return at night, might dig under her garden, and attack her. Since they are the superpigs, they might make plans like human! Greedy investors produced those pigs for making fast money. Human genes gave the pigs “wrestler-like” muscles; the abnormal size and the thinking ability of the pigs reveal the consequences of human greed. Atwood expresses her “fear” associated with genetic engineering by introducing superpigs in the novel. This dramatic change in the ability of the animals is certainly sure to disturb the eco-balance.

Furthermore, the corporate greed of making profit fosters philosophy of consumerism by evaluating all organisms (including humans) from monetary perspective. In fact, the superpigs, discussed in the earlier paragraph, are farmed to grow

human organs inside these pigs. On the other words, human organs are “farmed” inside pigs’ body. This “double-organ method” (221) enables genetic scientists to produce any “human pieces” like kidneys and lungs inside pig’s body. Here lies sensitive question: if human gene-induced pigs can think like human, is it not possible that human might develop some pig-like traits? No doubt, the geneticists try their best not to have such accidents. But nobody knows what future it brings about. The consequences of such scientific experiment are captured in the Hollywood movie *Splice* directed by Vincenzo Natali. The two scientists, a couple, decide to have private experiment of inserting human genes into the gene of various animals in their cloning experiment. In fact, the wife has secretly inserted her own genes in the cloning. The couple is filled with parental emotions after the birth of a female anthropoid “Dren.” However, Dren brings disaster to the couple when she changes her own sex by mutating the earlier female sex and rapes “his” own “mother,” the female scientist. The movie ends with uncertainty of future birth showing the scientist’s pregnancy.

As the natural selection process of the natural flora and fauna is altered by splicing, the outcome of the GE technology might be disastrous. Elaborating the arguments, Shiva debunks: “Process like hybridization are the technological means that stop seed from reproducing itself. This provides capital with eminently effective way of circumventing natural constraints on the commodification of the seed. Hybrid varieties do not produce true-to-type seed, and farmers must return to the breeder each year for new seed stock” (49). By mutating the regenerative quality of the seeds and the organisms, the companies are securing the position of creator. To resist the extreme commercialization of modern technology of genetic engineering, and with the belief on the regenerative power of the nature and the earth, a few members of the God’s Gardeners, regrouped under the networking of “MaddAdams,” release mice that would attack cars. They believe “if you could destroy the infrastructure . . . the planet could repair itself. Before it was too late and everything went extinct” (333). They did not want to kill people, but only wanted to warn them. However, the “mice got out of control. They got confused. Attacked shoes. There were foot injuries” (333). This is one of the reasons how “Waterless Flood” spread throughout the globe and killed almost all humans on the earth. As the GE technology promotes monoculture farming, a simple disease might turn to be a global pandemic because of the uniform defects in the GMOs throughout the world.

As genetic engineering has made it possible to select only desired traits in the organisms, it might have serious and unadoptable results on ecology. The consequences of the selection of traits and developing “utopian” organism are best exemplified by Atwood in the invention of the liobam: “They do not look dangerous, although they are. The lion-sheep splice was commissioned by the Lion Isaiahists in order to force the advent of the Peaceable Kingdom. They’d reasoned that the only way to fulfill the lion/lamb friendship prophecy without the first eating the second would be to meld the two of them together. But the results hadn’t been strictly vegetarian” (96). This type of utopian thought of creating “unnatural” organisms may endanger natural world and ecological system. The gentle sheep-like look of liobam may deceive the natural world: “Two liobam are on the hunt. Maybe the sheep smell them, but the scent must be confusing – part lion, part lamb” (238). Everyone does have a consensus that nature does not remain the same forever. It goes on natural evolution during the course of time by

adopting and combining traits from “natural” surroundings. However, genetic engineering makes the abrupt alteration in the genetic traits of the organisms which nature finds “unnatural” to adopt. Teitel and Wilson assert that a diversity of crops is needed to survive the unpredictable characteristics of the nature (14). However, genetic engineering has threatened the biodiversity due to corporate-oriented monoculture farming system. Such corporate “chimeras” dominate the world of *The Year of the Flood*.

The creation of such hybrid seeds and animals are made as per the corporate interest of making profit. The serious fact about such creations is that the producers do not have detail study on the impacts of the “products.” Pointing out the danger of genetic engineering in agriculture, Lynn White Jr. explains: “Formerly man had been part of nature; now he was the exploiter of the nature,” (8). He blames agricultural advancement for being the root cause of our ecological crisis. Corporations treat all organisms as product rather than the part of the nature. The presence of Mo’Hairs throws light on the commercial motif of the corporate world. As presented in *The Year of the Flood*, to satisfy the demand of fashionable world, scientists have developed animal resembling sheep for growing human hairs. Toby notices: “Closer to the building, a clump of sheep is grazing. Five of them: three Mo’Hairs – a green one, and a bright purple one – and two other sheep that appear to be conventional” (238). All flora and fauna are evaluated on the monetary value in the age of commercialization. Even human parts and organs suffer from the “gaze” of corporate world. The commodification of human body is best illustrated in the creation of “pigoons” – the human/pig splice – as discussed in the earlier paragraphs.

Another touching instance of extreme commoditization is projected in the struggle of Toby. After she has to leave her home, to escape from the eyes of CorpSeCorp men, Toby made “quick cash by selling her hair” (31). Human hairs equal to the hairs of Mo’Hairs in the eyes of consumers. However, she could not sustain her life longer with the money she earned selling her hairs. So, “. . . she had something of marketable value, namely her young ass, and therefore she wouldn’t starve to death, and nobody had to feel guilty” (28). More than that, her boss Blanco, at SecretBurgers, treats her hardly as human but only as the piece of “meat.” Though “there were stories about female debtors being farmed out for sex” (30), she had to adopt what came on her hand for survival because she had to save herself from the clutch of CorpSeCorp. Another example of the danger associated with corporate greed is the production of the super sex pills known as “BlyssPluss,” produced by a pharmaceutical company, which “gave you the best sex ever, but it had serious side effects, such as death. . . . That’s how pandemic plague started” (395). The desire of the investors to control the characteristics of the natural organisms leads to natural disasters unforeseen.

However, the text offers the alternative hope in the careful practice of ecological ethics in fostering genetic engineering technology. Biblical myth of apocalyptic flood and the saving the nature by Noah’s Ark are symbolically and distinctly presented in *The Year of the Flood*. It offers a hope in the lifestyles of the God’s Gardeners. The Gardeners act as the protector of biodiversity under the leadership of Adam One. Just like a religious preacher, he preaches the group members about the value of biodiversity and human conduct that are needed to preserve it. The story starts with the Year Five and ends in the Year Twenty-five. The gardeners prepare for the Waterless Flood of the year

Twenty-Five. These twenty years of time space, the Gardeners witness the consequences of GE technology that gone awry. On the very first speech made by Adam One, on Year Five, the need of companionship between the human and nonhuman is emphasized. He addresses all living creatures in inclusive terms: “Dear Friends, dear Fellow Creatures, dear Mammals” (11). By emphasizing the interconnectedness between all creatures, the Gardeners advocate the concepts of Barry Commoner that “Everything is connected with everything” (33). Adam One asserts: “decay and sterility lies all around us, and feeding ourselves with unpolluted food into the bargain” (11). The two words “decay” and “sterility” correspondence the health of environment we are living in, and the food we are consuming today.

Additionally, the philosophy of the God’s Gardeners offers hope in resisting the dangers associated with genetic engineering. Christianity is often blamed for encouraging the dominance of human over nonhuman creatures and the cause for environmental problems, and for promoting the concepts of consumerism. Peter Singer, talking about “speciesism,” blames the Western thought system and the Christianity for creating “the great chain of hierarchy” (56-57) to dominate the nonhumans by the humans. Adam One, the leader of God’s Gardeners, tries to subvert such orientation by re-interpreting the Bible in environmental terms. He questions: “God brings the Animals before Man, to see what he would call them. But why didn’t God already know what names Adam would choose? The answer can only be that God Himself cannot anticipate in advance. Think of that the next time you are tempted by meat-eating or material wealth! Even God may not always know what you are going to do next!” (12). These words of Adam One make it clear that the God (and of course, Christianity) should not be blamed for what happens on this earth. Only the humans handle the damage they have caused on this universe. That is why, to contribute on preserving natural biodiversity, the Gardeners use the abandoned towers, have grown beautiful garden full of diversity on the rooftops. Maintaining the harmony with nature, they are turned vegetarian, despise technology, and use everything recycled. The Gardeners do not use papers because they believe “paper was sinful because it was made from the flesh of trees” (60). The members of God’s Gardeners treat all organisms as a member of greater biotic family. They reflect the need of bioethics in saving the nature.

On the other hand, the corporate world lacks the sense of bioethics. Making maximum profit is what the corporate world is motivated by. The lack of “business ethics” is best described in the following sentences: “The public dining rooms served steak and lamb and venison and buffalo, certified disease-free so it could be cooked rare – that was what “Rarity” pretended to mean. But in the private banquet rooms – key-club entry, bouncer-enforced – you could eat endangered species. The profits were immense; one bottle of tiger-bone wine alone was worth a neckful of diamonds” (31). This profit-making interest of corporate world has put the natural species in danger. Even the “endangered” animals are sold in the market for making big profit. The ethical sense gets lost in front of profit value. This scenario of “ethical lapse” practiced by corporate world is further intensified by the genetic engineering technology. In the name of efficient farming, biotech companies are producing foods with artificial genes and chemical-producing plants. Despite the fact that such crops are harmful to nature and human health, these companies are promoting such products. Smith informs that such transgenic organism may produce number of harmful toxins, and may alter the levels of nutrients

concentration in such plants (133). One of the prominent members of the Gardeners, Pillar, Eve Six, keeps bees. She is worried that “the bees all over the world had been in trouble for decades. It was the pesticides, or the hot weather, or a disease, or maybe all of these – nobody knew exactly” (100). Similarly, Adam One in complains:

We honour the Pollinating Insects, and in especial the Bees, but we are now informed that, in addition to the virus-resistant strain introduced after the recent honeybee die-off, the Corps [Corporations] have now developed a hybrid bee. It is not a genetic splice. . . . Bees are seized while still in larval form, and micro-mechanical systems are inserted into them. Tissue grows around the insert, and when the full or “imago” emerges, it is a bee cyborg spy controlled by a CorpSeCorps operator, equipped to transmit, and thus to betray. (277)

Manipulation of GE technology for corporate satisfaction is harmful for the future of global biodiversity. The Gardeners’ honoring of insects reflects their love and value they have given to all nonhuman creatures. But, the modern technology “betrays” the relationship between humans and nonhumans. In contrast, the Gardeners “live in harmony” with nature. They teach the kids the life-skills needed for their survival and develop communal relationship with other organisms. They teach the children subjects like Fabric Recycling, Culinary Arts, Sewing, Holistic Healing with Plant Remedies, Wild and Garden Botanicals, Predator-Prey Relationship, Human Reproductive System, etc. (61). Even the life-events and the days of the Gardeners are passed in symphonic relationship with nature.

### Deep Ecology and the Use of Genetic Engineering

The philosophy of the Gardeners reflects the principles of “deep ecology.” Talking about philosophical position of deep ecology, Timothy W. Luke elucidates: “deep ecology proposes new norms of human responsibility to change the human exploitation of Nature into coparticipation with Nature” (2). This principle of “coparticipation with nature” is again exemplified in the words of Adam One who claims: “In our Father’s Garden there are many Species, and it takes all kinds to make an Ecosystem” (233). The corporate world, fully controlled by CorpSeCorps, in *The Year of the Flood*, regards the God’s Gardeners as “twisted fanatics who combine food extremism with bad fashion sense and a puritanical attitude towards shopping” (48); however, they utilize the neglected and deserted rooftops by growing diverse flora:

The Garden wasn’t at all what Toby had expected from hearsay. It wasn’t a baked mudflat strewn with rotting vegetable waste – quite the reverse. She gazed around it in wonder: it was so beautiful, with plants and flowers of many kinds she’d never seen before. There were vivid butterflies; from nearby came the vibration of bees. Each petal and leaf was fully alive, shining with awareness of her. Even the air of the Garden was different. (43)

God’s Gardeners harmonious relationship with nature emphasizes the need of saving biodiversity for eco-balance. However, the corporate world creates false “discourse” about the people who live in harmony with nature. Toby realizes that the corporate discourse of the Gardeners being “fanatics” is just “hearsay.” Similarly, the Gardeners worship the renowned environmentalists from distinct parts of the worlds as “Saints,” and celebrate the days as festivals after their names. The children in the Garden are briefed about their service and the struggle they had in preserving natural flora and

fauna. One of the famous personas they celebrate is Rachel Carson, an “icon” in the history of environmental movement, and who “dedicated her life to the Feathered Ones, and thus to the welfare of the entire Planet,” and who “was attacked by the powerful chemical corps of her day” (372). Likewise, they attempt to follow the footsteps of Dian Fossey, who dedicated her life on preserving gorillas, and who was “buried among her Gorilla Friends, on mountain she tried to protect” (312); Chico Mendes who fought for preserving Amazon rainforest and spoke for the rights of indigenous wandering tribes of Amazon; Euell Gibbons, who wrote many books on natural foods and edible wild plants, and who “taught the dangerous of poisonous species, which however can also be of Spiritual value” (125); David Suzuki, a geneticist, professor, who dedicated his life raising “ecological consciousness” to fight against government’s nature-harming decisions; Terry Fox, a marathon runner, who ran for raising funds for raising awareness on cancer, and “who ran so far with one moral and on metallic leg; who set a shining example of courage in the face of overwhelming odds; who showed what the human body can do in the way of locomotion without fossil fuels” (403); Mahatma Gandhi, the icon of peace, who stood against industrial interventions.

However, *The Year of the Flood* does not overlook the possibility of the humanitarian use of genetic engineering in saving lives. Unlike the Luddites, the Gardeners are quite practical. Luddites were the people who oppose the rise of machinery in the nineteenth century. They dismantled the machines as they feared it would destroy human’s harmonious relationship with nature. Likewise, the Gardeners oppose technology, do not allow the members to carry cell phones, has banned pharmaceutical products, use natural products for curing, and wear recycled cloth; however, they do not restrict the use of technology for the greater welfare. The Gardeners “kept their laptop in a concealed wall compartment in the small room behind the vinegar barrels” (189), and use it for storing data, especially genetic codes, the information that would help them in preserving the nature. The Gardeners have friends, even inside the corporations, who support them. Pilar, one of the Eves, uses genetic testing secretly for the diagnosis of her cancer. The use of technology by the Gardeners, though secretly, gives the message of using technology for greater reasons, not for generating unhealthy income that may harm the natural world.

Unlike the Gardeners, the corporate world lacks ethics. The lack of ethical sense is best showed in the act of HealthWyzer, a pharmaceutical company. It “had been sticking a slow-acting but incurable gene-splice disease germ inside their supplements so they could make a lot of money on the treatments” (293). Glenn’s father worked in HealthWyzer, but “he got unhappy when he found out they were seeding folks with illness via those souped-up supplement pills of theirs – using them as free lab animals, then collecting on the treatments for those very same illnesses” (244). The extreme profit-making motive of the corporations like HealthWyzer reveals the nature of global capitalism. As discussed on the earlier paragraphs, they are only centered on setting up monopoly, and ultimately destroying the life-generative quality of the nature.

The reason behind the formation of the group of God’s Gardener helps us in inferring the need of ethics in preserving the natural biodiversity. Most of the members of the group are from the company like HealthWyzer. They are the scientists who are fed up with the illegal activities of corporations. Adam One, the founder of the group, was also a scientist of HealthWyzer. Adam One declares: “I was a scientist. I studied



epidemics, I counted diseased and dying animals, and people too, as if they were so many pebbles” (40). Adam One fled the corporation for he realized the need of saving people from the ill treatment of the corporations to humans as the guinea pigs. Similarly, Zeb, Adam Seven, was also a HealthWyzer scientist. The scientists with a keen sense of ethics could not bow their heads in front of unethical corporations, and came to join the group: “The ratio of women to men fleeing the Corporations was roughly three to one. Nuala said it was because women were more ethical” (247). Similarly, the “Top scientists – gene-splicers who’d bailed out of the Corps and gone underground because they hated what the Corps were doing” (333). The scientists knew the “secrets” behind the GMOs, and its impacts on human and natural health. These scientists would “often brought contraband information with them. Long lines of code. Test secrets, property lies” (247) to the Gardeners. Adam One would warmly welcome them for he “harboured a dream of restoring all lost Species via their preserved DNA codes, once a more ethical and technically proficient future had replaced the depressing present” (247). Even the Gardeners do not deny abundant possibility of GE technology in preserving the global biodiversity. However, the very GE technology in the hand of corporate world turns destructive because of its unethical exploitation. The lapse of ethics in the corporate world has been the primary factor in destroying the biodiversity; and so, the ethics that the Gardeners have needs to be promoted for saving the traits of the pristine nature.

The philosophy and the lifestyles of the Gardeners translate environmental philosophies, especially deep ecology. Adam one, who “just knew [every] things,” (46) predicts about the “Waterless Flood” that would be brought about by the mischievous conduct of the Corporations, and asks his members to prepare for it. The warning of Adam One about the Waterless Flood reflects the Biblical warning of the God to Saint Noah. The Gardeners are asked to store foods, especially dry foods, to store in the “Ararat” in preparation for the Waterless Flood. The storeroom is called “Ararat” after the name of the mountain where Noah’s “Ark was beached upon” (90). Adam One compares the group with St. Noah: “We God’s Gardeners are a plural Noah: we too have been called, we too forewarned” (91). The natural products like honey, dried vegetables, dried sea-weed or powered milk substitute (265) are stored in the Ararats which lift them from the Waterless Flood – the global pandemic that was the result of the genetic engineering.

The Waterless Flood in the novel describes the possible global pandemic caused due to the misuse of GE technology. The Waterless Flood sweeps away almost all humans from the earth. Atwood writes:

A massive die-off of the human race was impending, due to over-population and wickedness, but the Gardeners exempted themselves: they intended to float above the Waterless Flood, with the aid of the food they were stashing away in the hidden store places they called Ararats. As for the floating devices in which they would ride out this flood, they themselves would be their own Arks, stored with their own collections. (47)

The “Ararats” of the Gardeners are the “Noah’s Ark” that could save humans from the “Waterless Flood” brought by genetic engineering. Corporate people blinded with the profit motive forget the role of all living organisms in keeping ecological balance. Philosophy of “humans in harmony with nature for [only] human good” (Naess 49) has been criticized by deep ecologists. They ask for the eco-awareness education program

with deep respect to the nature. Naess further positions: “A new ethic, embracing plants and animals as well as people, is required for human scientists to live in harmony with the natural world on which they depend for survival and well-being” (49). The education that the Gardeners give to the children and the principles they have adopted, as discussed on earlier paragraphs, correspond the philosophical arguments put forth by the eco-critics like Arne Naess. Atwood, by emphasizing the interdependence between human and all living organisms, warns the present world on what might happen if technological advances know no boundary.

The introduction of the Crakers at the end of the story offers the ultimate possibility of the eugenics of human gene splicing. Talking on eugenics, Cummings asserts: “[t]he eugenic notion that there were “good” genes and “bad” genes, and good and bad traits, and the seductive thought that we actually had a choice between them, began to take hold” (10) in the world of genetic engineering. The pandemic, that attacked only the humans and “leave all Creatures untouched” (424), cannot inflict “perfect” human gene-splicing of Crakers. They are developed by Glenn, alias Crake. The Crakers are spliced with many other animals. They have the best natural traits existing in the nature. Like the baboons, they mate when they turn blue, do not have any hair on their body, and they can heal their wounds by cat-like purring. They copulate only when the female in in season. The feature was added to “Facilitate mate selection. Eliminate romantic pain” (412) and they live in harmony with the nature. As Toby muse on: “Will they [the new people] replace us?” (414), the Crakers presents the possibility of future human. Human splicing, in the real world, has raised many ethical issues though it has been already in use in curing fatal diseases. But, human desire of being perfect, in this competitive world, with the feeling of being superior to all other living organism, might lead to producing perfect babies and the organisms like the Crakers ultimately threatening the natural process of biological evolution.

### Conclusion

By comparing and contrasting between the lives of the God’s Gardeners and the commercial people living inside the Compounds, *The Year of the Flood* shows the differences between the two societies: the people living in harmony with nature, and the people exploiting nature from anthropocentric perspective. Nature adopts the traits from the neighboring organisms adjusting itself as per the change in the climate. However, genetic engineering alters the natural evolution process by imposing the traits as per the “need” of the corporate world. Globalization backs up the influencing trans-border biotech companies in setting up its “empire” of the transgenic crops. As genetic engineering enables the geneticists in changing the crops in no time, there is dramatic reversal in the ecology. This very sudden change might be apocalyptic, and may put an end to the human world along with the nonhuman world. Saving nature depends on humans’ harmonious relationship with nature. Co-participation and integration, bond between human and non-human species, and the intense sense of bioethics are essential elements for preserving human and natural environment.

Briefly, this research concludes that Atwood’s *The Year of the Flood* succeeds in demonstrating the role of global economic power, coupled with the genetic engineering technology, in changing the diverse characteristics of the nature. Genetically modified organisms are drastically changing the ecology by destroying the biodiversity. Genetic

engineering, if used from ecological perspectives, sustains the ecological diversity. Otherwise, genetic engineering, in the hand of global economy, would be apocalyptic.

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