

“Green” Reproduction, Resource Conservation, and Ecological Responsibility

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Abstract

This paper will draw on Catholic resources to examine the impact of population and consumption vis-à-vis reproduction in the developed world as it relates to theological/ moral obligations to the earth. By examining both natural and artificial means of procreation, an assessment of “green” reproduction can be made. I will explore contraception as an option for limiting natural procreation, and the avoidance of assisted reproductive technologies [ARTs] as a way of preventive artificial reproduction. However, both family size and carbon footprint must be scrutinized for ecologically sound consumer practices in accordance with biblical principles to ensure the global magnitude of the ecological crisis is examined; therefore the role of consumption that stems from procreation will also be discussed. The paper will conclude by envisioning alternative parenting options as they relate to ecological practices, and I will assert that all things considered, on the continuum of ecologically oriented reproductive choices, non-biological parenting and thereby a reduction in procreation and consumerist practices is the most ethical and ecological solution to the environmental crisis that surely escalates with each birth.

Keywords

procreation – reproductive technologies – ecology – consumption – Catholic moral theology – green reproduction

1 Introduction

The relationship between Christians living in industrialized countries and the environment is a topic that is capturing the attention of academics, seminarians, and the faithful in the pews. Ecological stewardship, concern for the growing extinction of animals and plants, and global warming are of the utmost importance to those who see "human action linked to an unprecedented litany of environmental problems" (Cohen 1996: 341–346). Indeed, in 2010 when the Environmental Protection Agency released its report "Climate Change Indicators in the United States" detailing twenty-four causes of global warming the verdict was "clear evidence that the composition of the atmosphere is being altered as a result of human activities and that the climate is changing" (Environmental Protection Agency 2010). Although anthropogenic activity was continually and thoroughly linked to the increase in greenhouse gas emissions, the most obvious solution to ameliorate human caused acceleration of global warming was not suggested—have fewer humans by reducing population.

Planet earth is undoubtedly in the midst of a population problem—there are too many mouths to feed, and too little land and food to provide adequately for all their needs. Based on projections, the number of people on earth will grow, not stay the same or slow down (U.S. Census Bureau 2009). Moreover, humans are consuming at a rapid pace that does not allow the earth to replenish itself. This is a real problem for the many people of the world, and the multitudes of creatures, that are affected by the rampant consumption of humans on earth. Yet population and excessive consumption are topics that have been shied away from in Christianity, especially on the pulpit. Nevertheless, faithful Christians must address difficult moral issues, thereby seeking human and eco-justice, and ensuring the human role of benevolent stewards of the earth.

This paper will draw on Catholic resources to examine the impact of population and consumption vis-à-vis reproduction in the developed world as it relates to theological/ moral obligations to the earth.¹ By examining both

1 It is morally problematic to assign the burden of environmental responsibility to those in developing countries alone, where a variety of social and political factors necessarily lead to large families. Such factors include a patriarchal society, poor contraception, a lack of education and job opportunities for women, high infant and child mortality and morbidity, and an unstable political life that leads to general uncertainty. It is simply unfair and short-sighted to blame planetary destruction and hunger on the poorest of the world, which live on a fraction of what developed countries live on even though they tend to have more children. I will therefore avoid probing the polyvalent aspects of population and consumption in the developing world and focus on the developed world.

natural and artificial means of procreation, an assessment of “green” reproduction can be made. I will explore contraception as an option for limiting natural procreation, and the avoidance of assisted reproductive technologies [ARTs] as a way of preventing artificial reproduction. However, both family size and carbon footprint must be scrutinized for ecologically sound consumer practices in accordance with biblical principles to ensure the global magnitude of the ecological crisis is examined; therefore the role of consumption that stems from procreation will also be discussed. The paper will conclude by envisioning alternative parenting options as they relate to ecological practices, and I will assert that all things considered, on the continuum of ecologically oriented reproductive choices, non-biological parenting and thereby a reduction in procreation and consumerist practices is the most ethical and ecological solution to the environmental crisis that surely escalates with each birth.

2 Creating an Ecological Theology of Responsibility

According to the Christian tradition,² human beings have been uniquely endowed with a role of biblical stewardship. Scenes of biblical responsibility to all creatures are especially noticeable after creation [Gen. 1:28–29] and after the flood [Gen. 9:8–16] where there is a re-creation that encompasses God’s plans for humans and animals, and indeed the earth itself. In these places of renewal, “the purpose of God included the well-being of the entire creation, not just of humanity alone” (Cahill 2004: 11). As early as 1987 Pope John Paul II “expanded the concept of authentic development to include ecological considerations” (Christiansen 1997: 23) through the encyclical *Sollicitudo rei socialis* which reminded us “natural resources are limited” (Congregation for the Doctrine of the Faith 1987a: #34). As such, each person must check his or her consumption in accordance with the limited supply of resources on the earth. Suggestions made by ecologists to reduce the use of fossil fuels, meat consumed, minerals excavated, and other limited reserves have provided an outline for ethical consumption, yet many have been unforthcoming in suggesting the simple solution of reducing the number of children born.³ This clearly

² And other traditions as well. See, for example Tucker and Grim (1994).

³ The combination of the notion of “procreative freedom” and the abuses of forced sterilizations and abortion, and especially eugenic and Nazi programs, remain a vivid warning to many who hear suggestions for population decline. However, speaking about voluntarily reducing population raises no such issues.

reduces population and therefore both short-term and long-term consumption. Reducing population immediately decreases the every day resources that are needed to sustain humans, in addition to reducing the long-term effects of procreating—the perpetuation of generations which each need exponential resources to maintain life. While population is dropping in industrialized countries,⁴ it is not necessarily for environmental reasons.⁵ At the same time, resource consumption is expanding to the effect that humans are now using the equivalent of 1.5 earths to sustain our consumptive lifestyles and it is predicted that by 2030 we will be using the equivalent of two earths to sustain our inhabitants and lifestyle (Global Footprint Network 2010).

In the most recent years, there has been a shift in thinking about marriage and children in the Catholic Church as theologians are trying to reconcile the pastoral needs of couples grappling with the decision of having children,⁶ the social reality of ecocide, and the worldwide issue of rampant population growth. Taking seriously the need to balance population and consumption with the finite resources of the earth is one avenue of biblical stewardship Christians are compelled to attend.

2.1 *Responsibility to Other Humans*

Christians believe that human beings are made in the *Imago Dei*, the image of God, and as such are accorded a place in creation that is unlike the rest of nature. As caretakers, Christians are to protect and establish the rights of other human beings, even those who are not our geographical neighbors. “Globalization means that we think of the common good differently. It requires ... that we recognize the Christian vocation of self-sacrifice ... going beyond rights” (Cahill 2004: 19). As human stewards, Christians must also look beyond the immediate present to anticipate the needs of those who will follow, our “moral obligations and responsibilities towards future generations” (Murtagh 2007: 717). In order to protect both the present and future world, Christians should cogently consider how human actions are not only tied to specific locations in space and situations in time but extend throughout the ecosphere and history. Ecological theology disallows a view of the world as disposable; it must be inhabitable for

4 47% of women in America ages 15–44 are currently without children and 20% of all women in America will never have a biological child (Livingston and Cohn 2010).

5 See, however, the Green Inclinations No Kids [GINK] movement (2010) and Courtenay-Smith and Turner (2007).

6 I am aware that single people can and do have children, but in general I will be referring to couples considering children to reduce the number of extraneous issues that I would have to attend to in a discussion on single parenting.

all. Therefore, population growth and resource consumption rightly concern Christians.

2.2 *Responsibility Towards Creation*

Yet the Christian sphere of responsibility is not just to those of our species. Within the biblical text of creation, humankind was to name the animals and tend to the garden with a covenantal responsibility to the non-human animals and non-animal life forms. Guardianship over non-human life meant concord and preservation, along with “conceptions of human responsibility designed to redirect human power over nature into a stewardship of nature” (McKenny 1997: 211). But in recent centuries domination has led to extinction and endangerment. This was not the original intention of creation.

It is impossible to live without the use of nature, so Christians need to seriously consider how each birth adds to the pressure on resources at an ever-quicken pace. “Our relationship with the world calls for care, concern, reverence, and solidarity with our environment. We might call this virtue ecological stewardship” (Curran 2011: 68). Retrieving an attitude of conservation and the inherent worth of creation would result in preservation and harmony, as noted in the 1990 World Day of Peace message delivered by Pope John Paul II where he indicated that “two fundamental principles should guide our moral considerations: the integrity of all creation and respect for life” (McHugh 1997: 93). Continuing on the path of forceful razing will have devastating implications for all of God’s creation—human and not, but working with an ecological theology will be advantageous to our delicate world.

3 **Ecological Theology and Natural Reproduction⁷**

In 1995 when the Pew Charitable Trust, a group of Roman Catholic scholars gathered at Notre Dame for a conference on the Challenge of Global Stewardship, “confidence in the boundless fecundity of the earth and the unequal-

7 This section will address couples that are not using assisted reproductive technologies. Instead of conflating fertility with natural reproduction and infertility with artificial reproduction, I will take the more realistic account that some people diagnosed with infertility end up reproducing naturally through spontaneous pregnancy, and some people that are fertile use reproductive technologies. The demarcation between natural and artificial reproduction therefore has some logistical nuances that must be made, but in terms of environmental impact of children in the global North, the net effects on the planet are similar in terms of consumption.

ified good of human productivity was gradually giving way to a sense of limit, fragility, and perilous interdependence" (Ryan and Whitmore 1997: 2–3). A combination of factors had morphed human existence from a struggle to survive to an unstoppable organism. With the stability of the developed nations came the advent of consumerism, luxury goods, disposable time and income, and a lethargy that forgot about the hardships of others which still calls to us in silence.

The responsibility of humans to be caretakers of each other and of creation was crowded out by a self-centered thinking that put the desires of the self not only as equal to others, but above others. "In the United States, the exaggerated emphasis on individualism has given free rein to the individual to do whatever one wants with regard to nature and ecosystems" (Curren 2011: 69). A strong sense of entitlement drove many decisions, even amidst ecological concerns of famine, population growth and equitable use of goods. Just as today, the people who are fortunate enough to live in wealthy countries have been, by and large, unwilling to relinquish something that they consider to be a "right" for the sake of others. Nevertheless, "experience teaches that, like interests and goods, rights cannot be absolutely unqualified" (Towner and Springer Loewy 2005: 75). One "right" which has often been spoken of in those absolute terms, at least geometrically, is reproduction.⁸

"Reproductive freedom is such a widely accepted norm in Western society that some even assume it to be an individual's absolute or inalienable right" (Towner and Springer Loewy 2005: 75). It is this mindset that has, in part, obfuscated the critique of environmentalists on population growth and the resulting resource use and ecological pressure. It should be noted, however, that those concerned with population for ecological reasons typically do not say that humans should stop procreating all together, but rather procreation *at this time of urgency* must be limited in order to ensure survival for all.

3.1 Ecology and Family Size

For most heterosexual couples the decision to have children presents itself as "when" and not "if." Conditioned from childhood,⁹ pressured by the media,

8 Taxonomically, of course, religious and secular ethicists do want to limit the "right" of procreation to certain individuals—usually those who are responsible, not mentally incompetent, of a certain age [both in the lower and upper limits], of good or fair health, and possibly in a particular type of relationship or who have a particular sexual orientation. For this use [not these examples] of "geometrical" and "taxonomical" see Keenan (1993).

9 For a critique on socialized motherhood and gender essentialism see Raymond (1993); Peck (1976); and DeBeauvoir (1989).

society and their families to reproduce,¹⁰ marriage and children are often seen as one of the goals in life along with homeownership and retirement. Magisterial teaching reinforces this view of prescriptive parenthood, stating that intercourse “ultimately does not make sense unless both meanings [of marriage—the unitive and the procreative] are recognized and respected in *each and every conjugal act*”¹¹ (Haas 1998: 101) [emphasis mine]. In the best of cases, married partners evaluate the current ecological climate and if now is the most ideal time to have children. If they conclude that it is ethical and desirable to have children, they plan and prepare accordingly. Even so half of all pregnancies in the U.S. are not intended (Centers of Disease Control and Prevention 2001) and a great many more are not evaluated under ecological ethics. Both family planning and responsible parenthood have been themes in the Catholic Church throughout time, and are pillars of married sexual ethics.

Although “at times the [Catholic] Church has been blamed as a major causal agent of world population growth because of its moral teachings opposing artificial contraception ... the Church has never insisted on unlimited reproduction on the part of couples” (McHugh 1997: 86). Indeed, Pope Pius XII stated in his Address to the Italian Catholic Union of Midwives that “serious motives, such as those which not rarely arise from medical, eugenic, economic and social ‘indications’ may exempt husband and wife from the obligatory, positive [conjugal] debt for a long period or even for the entire period of matrimonial life” (Pope Pius XII 1951). This means that couples could legitimately never have children if there were serious enough circumstances. I would deign that mitigating ecological factors would qualify as “serious” enough to limit children. Indeed, the theme of population growth and Catholic duty to responsible parenthood is no stranger to theological reflection.

Leading up to the decrees of Vatican II, a 1965 session at Notre Dame on “The Problem of Population” signed a statement addressed to the Papal Commission on Birth Control affirming, “contraception is not intrinsically immoral ... [and] there are certain circumstances in which it may be permitted, or even recommended” (Ryan and Whitmore 1997: 1). This conclusion was driven in part by mounting population pressures, and although the majority opinion did not appear in later encyclicals, two years later *Populorum progressio*

10 This bias is seen, for instance in the hesitance of doctors to provide tubal ligations for women without children. See Benn and Lupton (2005: 1323) and Wallace (2011).

11 The two aspects of marriage can be found throughout Church teachings, including Congregation for the Doctrine of the Faith (1968: #12).

confirmed that “there is no denying that the accelerated rate of population growth brings many added difficulties” yet “appropriate measures, [must be] in conformity with the dictates of the moral law” (Paul VI 1967: # 37). *Humanae vitae* issued in 1968 likewise juxtaposed responsible parenthood with the necessity of avoiding artificial contraception (Congregation for the Doctrine of the Faith 1968: #10–14). The growing concern over population growth and biocide—resource depletion, carbon emission, endangered species, and pollution—has demanded consideration from Catholics and the world at large. It appears evident, therefore, that although official Church teaching on avoiding children altogether might be unpalatable, as it would severely restrict when one could have intercourse, official Catholic authorities do consider limiting family size for certain reasons both moral and responsible.

3.2 *Ecology and Resource Use*

While population growth is a most visible concern of ecologists, and must be addressed, the larger ecological issue in developed nations where birth rate has fallen (Hamilton, Martin and Ventura 2009) is the “carbon footprint” and consumer acquisitiveness. Rate of consumption has skyrocketed in the developed world (Chao 2006); therefore resource use of families must be taken into account alongside the number of children a family chooses to have. It is not only the use of fossil fuels to power cars, planes and recreational vehicles, but also high-calorie diets, planned technological obsolescence, and simply too much material depletion that is polluting the atmosphere, demanding deforestation for luxury items, and recklessly exhausting the world’s resources without consideration for others on the planet.

This means that even though a couple in an industrialized country might only have two children, “each child ultimately adds about 9,441 metric tons of CO₂ to the carbon legacy of an average parent—about 5.7 times a person’s lifetime emissions” (Littlefield 2009). In the industrialized world there is no decision more significant to planetary conservation than if and how many biological children one has. To discuss population without consumption is myopic and usually dominated by a consumerist mindset that demands access to goods without reflection of costs to the planet. Within our global village we must consider the impacts of resources used by new children as well.

3.3 *Natural Reproduction and Ecology: Contraception as an Option*

Two issues of environmental care and natural reproduction come to view here: that of population and that of consumption. Solutions must be made in accordance with Christian standards and with concern for all living creatures. Utilizing contraception for couples that are considering natural reproduction in

order to attenuate birth is one option for reducing population and population driven consumption.

The Catholic document *Gaudium et spes* advocated natural contraception for family planning as a legitimate means of responsible parenthood (Pope Paul VI 1965: ch. 1, #47–52). Despite the oftentimes arduous and ineffectual use of natural family planning [NFP] or “the rhythm method,” the magisterium was not blind to the pressing issues of population growth, resource scarcity, and ecological destruction, and therefore offered this form of natural contraception to the concerned faithful. For Catholics who feel bound to official magisterial teachings, NFP can thus be utilized to prevent procreation. But those Catholics who find this teaching too arduous to accept—an estimated 98% of U.S. Catholic women—(Jones and Dreweke 2011: 4) artificial contraception can be justified by further teachings within the Catholic tradition.

Although the Church has historically held that artificial contraception is a sin, for a period in the 1960’s the traditional view was in limbo as Church-appointed theologians reconsidered contraception in the modern world. During Vatican II, Pope Paul VI commissioned a study on the Church’s teaching on artificial contraception. After studying the issue, and hearing the testimony of married couples, the draftsman of the Majority Report representing fifteen out of the nineteen theologians wrote, “we have to educate the people to assume responsibility and not just to follow the law” (Majority Report of the Birth Control Commission 1966) but also follow their conscience. The statement asked the magisterium to permit couples themselves to make decisions about the contraception they use—natural or artificial.

While the majority position was not adopted, it is often a reference point for those within the Church who view contraception as a moral means of limiting procreation. These scholars have a sympathetic interlocutor in Thomas Aquinas. “The natural law, if broadly understood and ecologically revised, may suggest the [re]ordering of nature which warrants family planning in marriage” (Christiansen 1997: 23). By appealing to logic and creative innovations of humankind, contraception can be subsumed under progress, and therefore find resonance with Thomistic understandings of natural law.¹² This new interpretation of natural law theory may provide relief for both couples and the environment as contraception is embraced and unplanned pregnancies are prevented.

12 For a further exploration of the Catholic revisionist and feminist view on natural law theory that supports artificial contraceptive use see Salzman and Lawler (2008: 102–123).

Furthermore, the “sanctuary of conscience,” whereby a Catholic must necessarily follow their conscience is another Thomistic teaching that can justify artificial contraception (Aquinas ND: q. 19, article 5, 6). This both releases the faithful from following magisterial teachings and places the responsibility of decision within the conscience of the individuals. If a woman or man were convinced that the morally right action would include limiting procreation by artificial means, they would be obligated to follow their well-formed and informed conscious to take preventative measures. Finally, there is even a line of thought in Catholic theology that supports totally childfree unions, given that relationship is still “fruitful,”¹³ that is, generative in non-physical ways.

Margaret Farley in her groundbreaking, albeit controversial,¹⁴ book *Just Love: A Framework for Christian Sexual Ethics* writes, “beyond the kind of fruitfulness that brings forth biological children, there is a kind of fruitfulness that is a measure, perhaps of all interpersonal love” (Farley 2006: 227). This love manifests in a variety of channels, including helping to raise other people’s children (Farley 2006: 228) or in serving the Church and society in other avenues (Farley 2006: 287). These pioneering views of relationships can liberate couples to choose a greener lifestyle, whereby they are fruitful emotionally and spiritually, not physically. Contraception, especially when it is used to support non-physical fruitfulness even to the exclusion of biological reproduction, reduces the population and procreation-related consumption. Even so, limiting or reducing population through contraception will be futile if planetary exploitation continues. Fewer people will not be able to live well if the earth cannot produce enough resources, and at the same time provide a habitable environment, therefore consumption must be explored as well.

13 Also in the Protestant tradition (Barth 1961: 240–249). “Barth argues from a survey of biblical parenthood that the meaning of lineage does not come from biological kinship. Rather God commands human parenthood as a symbol of God’s fatherhood over human beings. This means concretely that while biological parenthood has weight and honor, the meaning of parenthood can be fulfilled outside of it” (McKenny 1997: 248–249). We are therefore not morally obligated to procreate, even within marriage. This echoes Augustine “Would that all men had this wish [to restrain themselves from all intercourse]” and thereby procreation (Augustine 1997: 9, section 9). For Augustine Christians are no longer under the mandate of Genesis to procreate, as the end of time is near. Augustine is likely taking 1 Corinthians 7:7 as an authority.

14 Dr. Farley received a Congregation for the Doctrine of the Faith [CDF] “Notification”—an official announcement regarding contentious and aberrant points of doctrine that are put forth by the theologians within the Church—in 2012. The CDF took issue with her sexual ethics regarding homo and autoerotic acts, and divorce and remarriage. See Congregation for the Doctrine of the Faith (2012).

Unlike contraception, there is not a pill one can take that will prevent humans from amassing resources superfluous for survival and creating inequalities in lifestyle. Reducing consumption in all forms is essential to survival of the planet and the creatures that inhabit it. Filling the void of consumption with biblical values such as love, relationships, knowledge, and compassion will allow people to flourish with what they actually need instead of what they think they want, or worse still, what they do not even want, but have been socialized to think they want. This is the difference between quality of life and standard of living (Ehrlich 2009: 432).

Quality of life focuses on “all things money can’t buy.” These values and experiences are, by definition, carbon neutral, and free for all. They increase quality of life through love, excitement, and enjoyment of nature. In contrast, standard of living does not determine happiness. As one procures more and more goods, they find themselves on the treadmill of acquisitiveness. Humans are faced with a choice that we must make today in order to preserve tomorrow. If we continue to consume to the point of exploitation, there will be nothing to sustain the future. Here we must return to an analysis of population and consumption via artificial reproduction.

4 Ecological Theology and Artificial Reproduction

Artificial [or assisted] reproductive technologies [ART] for humans were first created to circumvent—not cure—infertility.¹⁵ Infertility—which has no un-animously agreed upon definition¹⁶—is sometimes traced to biological factors such as blocked tubes and low sperm count. Other factors that influence infer-

15 Infertility itself can be only be cured if it is caused by physical factors that can be reversed like blocked tubes that can be repaired or obesity-related infertility that can be reversed through weight loss. ARTs are not a cure for infertility; they merely circumvent infertility, allowing a pregnancy to be procured. For this reason, some ethicists do not consider ARTs a medical treatment so much as a medical enhancement since the underlying condition is not treated.

16 The World Health Organization currently defines infertility as the inability to become pregnant after two years of unprotected intercourse (WHO 2013). In contrast, the American Society of Reproductive Medicine suggested in 2008 that infertility be redefined as a woman who cannot conceive and carry to term a pregnancy after 6 months for a woman over 35, and after a year for a woman 35 or younger (Division of Health Care Finance and Policy 2009: 1). Note how infertility is discussed in terms of female deficiency, and not male.

tility are related to lifestyle like obesity (Mayo Clinic 2011) or untreated sexually transmitted diseases (Center for Disease Control 2008). Infertility affects both genders equally, with 1/3 of the cases traced back to male infertility, 1/3 of the cases to female infertility, and the final 1/3 is a combination of factors (Mayo Clinic 2011). Every person who lives to middle age or beyond will become naturally infertile, as fecundity declines with maturity. In this manner it is a normal physical process.

Although ARTs¹⁷ are most closely associated with infertile couples, they are not limited to infertile couples, and are becoming a popular option for fertile couples that view ARTs as a lifestyle choice. For couples that do not want to “deal with the stress of trying to get pregnant”¹⁸ or are no longer in relationship, but wish to provide a biological sibling for a child from the now-dissolved marriage,¹⁹ ARTs aid in pursuit of individual ideals about life and reproduction. Fertile single women and fertile women in same-sex couples are eligible for funded in-vitro fertilization [IVF] treatment under many United States health insurance policies.²⁰ Where funding is not available, the choice to pay out of pocket remains.

Women with children who have secondary infertility—whereby they were able to conceive and have a healthy delivery at one point but are no longer able to do so—use ARTs (Cates, Farley and Rowe 1985). Some financially stable and emotionally mature women are purposely having abortions and counting on ARTs in later years (Cooke and Nelson 2011; Borland 2012). Furthermore, couples that want to avoid a certain genetic disease or select the sex of their next child are also using reproductive technologies (Parens and Asch 1999). A 2006 survey by Johns Hopkins University found that 42% of fertility clinics offered sex-selection for the purpose of “family balancing” (Sidhu 2012).

Highlighting the various uses for ARTs reflects the current data that reproductive technologies are not only a choice for the infertile but also for the fertile

17 The term ARTs is broad and includes in-vitro fertilization [IVF], artificial insemination by donor [AID] or husband [AIH], egg donation and surrogacy, and pre-implantation genetic diagnosis [PGD] used with IVF. I will generally use the broad acronym ART, unless statistics or specific procedure refers only to IVF—the most popular and common of the ARTs.

18 This a quote from *U.S. Weekly* running an article on Angelina Jolie’s choice to use IVF despite having several adopted and biological children already.

19 This was reported to me by a co-worker.

20 In the U.S. fifteen states mandate that health insurance policies have some provision for coverage of infertility. Fourteen states do not specify that a woman be married or in a couple. Single woman and unmarried couples are eligible for treatments. State Laws Related to Insurance Coverage for Infertility Treatment (March 2012).

as well. Though ARTs may be more appealing to the infertile²¹ who do not have the current social and/ or physical option to have a biological child naturally,²² I will choose to address ARTs whole as a lifestyle decision. Although ARTs are not as effective as natural procreation,²³ they are, in terms of environmental impact, another mode of procreation, yet they are often overlooked in discussions on population growth. This may simply be due to the fact that population was at a “mere” 5 billion in the late 1970’s when IVF was first successful. Now at 7 billion citizens,²⁴ population growth can no longer be divorced from reproductive technologies. As ARTs become more prevalent and fewer people pay out of pocket for fertility treatment, the ecological implications of reproductive technologies must be considered in light of Christian stewardship.

In traditional Roman Catholic teaching, popular infertility treatments like in-vitro fertilization, artificial insemination, or donor gametes are not permitted as they separate the unitive from the procreative act of marriage (Congregation for the Doctrine of the Faith 1987b). Many couples are unaware of these restrictions and seek ARTs at their own discretion. Ethical issues regard-

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- 21 Data is not collected on how many fertile people are utilizing ARTs compared to how many infertile people. There is no information on how many women with children are seeking ARTs [think of the “octo-mom” incident, where single mother of several children sought assisted fertility treatments and gave birth to eight more children]. By deduction, however, we might count people who use heterologous gametes [donor egg or sperm] from being infertile, as only one of the partners is infertile, and the other is fertile. We might also count surrogates, who are typically mothers already and not infertile, even though their use is reported in IVF cycles. We can also count 90% single women and women in same-sex couples [the average distribution of women who are infertile] who seek ARTs as they are socially—not biologically—infertile. Finally, anyone using ARTs for “gender balancing” already has at least one child, otherwise there would be nothing to balance! It can also be assumed that most people using pre-implantation genetic diagnosis [PGD]—and all people seeking PGD for “savior sibling” treatments already have at least one child, and therefore are fertile.
- 22 But again the matter is complicated. In terms of a “biological” child, if donor egg or sperm, or both are used, or if a surrogate is used, the child is not exclusively and “biologically” related to both partners in the couple. Therefore one might question why ARTs are thought to provide a “biological” child to a couple, when this is not always the case. In 2005, 12% of IVF cycles used donor eggs. Donor sperm are not reported in data on ARTs, but the numbers are probably similar (Asch and Marmor 2008) making a quarter of all IVF children not the product of their socializing parents.
- 23 The take home rate of live children born through IVF is 23–86% based on age and six cycles of IVF (Malizia, Hacker and Penzias 2009).
- 24 See United Nations Department of Economic and Social Affairs (2011).

ing the use of reproductive technologies remain, such as just distribution of limited medical resources, the physical harm that ARTs can cause to women's bodies and their potential children, and medical obligations to the common good and justice (Richie 2012). But the growing acceptance of ARTs, substantiated by awarding the 2010 Nobel Prize in Medicine to Dr. Robert G. Edwards, one of the innovators of reproductive technologies, reflects the general consensus that ARTs really are just another way to make a baby. Indeed, even some Catholic theologians would justify the use of artificial reproductive technologies if homologous gametes were used, no embryos were destroyed, and the couple maintained their unitive bond.²⁵ Catholic objections to ARTs may be restricted to a Catholic audience, but unlike appeals to the magisterium, which are only adhered to by [some] Catholics, the ecological perspective on ARTs could become normative for couples outside the Catholic tradition as well.

4.1 *Ecology and Family Size*

"What is bizarre about in-vitro fertilization is how a civilization that ... has been told we are overpopulated and on the brink of ecological disaster has developed such a technique" as ARTs (Hauerwas 1986: 146–147). Yet to some individuals, reproductive technologies are not a real environmental menace because of their relatively infrequent use for perpetuating the species. However, when put into a conservationist perspective, ARTs are more commonly leading to live births, much to the detriment of the planet and its resources. "The annual number of ART infant births increased 44 % from 21,943 in 1997 to 31,582 in 2000" (Reynolds et. al. 2003: 1162) with "a total of 109,519 live born infants conceived from ART procedures in the U.S. delivered between 1997 and 2000" (Reynolds et. al. 2003: 1060). These numbers are increasing at an exponential rate. Statistics show the number of infants born as a result of IVF alone is over 1 percent of all births in America (Center for Disease Control and Prevention 2013), but the United States is just a small piece of the puzzle. In Israel an incredible 4 % of all births—the highest in the world—(Yee 2011) are produced by ARTs. Over the globe, the number of children born via ARTs are in the millions.

By 2006 there had been 3 million IVF babies born worldwide (Horsey 2006), and in 2010 it was 4 million (Russell 2010). Just two years later, another million IVF babies were added to their ranks, bringing the total to over 5 million

25 Maura Ryan, Lisa Sowle Cahill, Todd A. Salzman, Michael G. Lawler and Margaret Farley would further nuance the acceptability of ARTs based on additional ethical criteria like justice, love, access and responsibility.

children born through IVF worldwide (Gallagher 2012). This is a growing trend, and although there are some lingering concerns over the long-term health of IVF babies (Thompson et. al. 2002), this will likely only drive the industry forward into its lucrative future rather than into cautious retreat.

Furthermore, we are now at the point where ART babies are continuing their own carbon legacy through reproducing.²⁶ The multiplying effect will be devastating to the planet, especially since reproductive technologies are primarily furnished in developed countries with high consumption and pollution rates. With multiple births as the norm, not the exception, and the increasing popularity of assisted reproduction, ART babies are certainly making their contribution to the population boom. The seriousness of ART births is highlighted by the frequency in which the reproductive technique yields multiple births.

“It is widely known that pregnancies conceived through the use of ART and non-ART fertility treatments are more likely to result in multiple births than naturally conceived pregnancies” (Reynolds et. al. 2003: 1159) because ART procedures are inherently conducive to a multiples pregnancy through the technique of fertilizing multiple eggs and then implanting the multiple embryos into the woman’s uterus. Although potential parents may opt for selective reduction [abortion], the numbers of embryos that remain in utero and develop into fetuses vary widely. “Twins are rarely considered as an adverse outcome. It is even considered sometimes as a good way ‘to make up for lost time,’ in fact ‘a nice way to have two children in one pregnancy’” (Olivennes 2000)! Even Christians who pursue ARTs may also be susceptible to this mindset.

Demands to access ARTs must be discussed in light of current issues of competition over natural resources and ecological destruction by human beings. “Any attempt to assess the limits of obligation to promote fertility must begin with a critique of prevailing, highly individualistic accounts of procreative liberty” (Ryan 2001: 10). Population has virtually exploded since Vatican II, yet many of the concerns raised in *Gaudium et spes*, and later *Populorum progressio* and *Humanae vitae* are still major concerns. The prevalence of ARTs are exacerbating the ecological challenges of the modern world. Among the faithful, “many feel that we are still weighing the human consequences of ‘uninhibited procreation’ and insist that ‘something must be done’” (Ryan and Whitmore 1997: 7–8). Making available procreative technologies certainly counts as uninhibited procreation, especially since there are no legal limitations on ARTs for purchase.

26 Louise Brown, the first viable IVF baby gave birth in 2007. She lives in the U.K. (Moreton 2007).

4.2 *Ecology and Resource Use*

It is unlikely that the ART baby boom will ever reach the same magnitude as procreating children by natural means in our lifetime, therefore in terms of sheer numbers ART children in industrialized countries will not single-handedly raise the fertility rate to urgent numbers. Yet the fact that ARTs were developed in and primarily serve industrialized countries where consumption is rampant is a prominent concern. Through the allure of modernity and a constant barrage of advertisements, humans in well-to-do countries are encouraged to take what they can get, even at the expense of others.

ARTs—just like natural reproduction—must then be evaluated in terms of projected resource use of the individuals and couples seeking this procedure as well as population contribution. The assessment of assisted reproduction as a practice harmful to the environment may seem draconian to those who are only thinking of their reproductive projects and who are not as concerned with global events as they are their own immediate plans and circumstances, but the competition of a couple's desires and the global crisis caused by consumption must be adjudicated.

It is no surprise that a couple without children in the industrial world will typically use fewer resources than a couple with children of similar geographical and economic background.²⁷ Likewise, a couple with one child will generally produce less carbon emissions than a couple with two children, and so on. Instead of feeding and transporting a family of two [the couple], doing the same for a family of four doubles resource use. Instead of living comfortably in a two-bedroom home, a family with children requires a larger home. Instead of an ultra-low emission vehicle [ULEV] like a Honda Civic, the family with children requires a less fuel efficient SUV or mini-van to transport all the kids to lessons, school, and Church. In general, the couple of any socio-economic standing that decides to procreate must provide at an exponential rate for their lives that they have created in a way the childfree couple in the corresponding demographic does not.²⁸

27 It is always possible that the childfree couple could be environmentally reckless and live in a profligate manner, thus expending more resources than a family of two parents and two children, but when the childfree couple dies, their carbon contribution dies too—not so with those who have had children.

28 Although it is beyond the scope of this paper, lifestyle not related to procreation that varies on income should be assessed as well. There is some evidence that once a couple/family reaches a certain level of financial security their carbon impact drops off as they start buying low-impact, high-expense items such as tuition for education, investments in stocks and bonds, retirement plans and health insurance. See Durning (2009).

When Christians reflect on ARTs, we should examine the effects of procreation for people in industrialized countries who generally use decentralized transportation, eat a high-fat, high-meat diet, and who consume the most amount of resources as well. “Our wants and desires have to be moderated for truly human and Christian purposes in discussing the virtue of temperance” (Curran 2011: 70). Children are not a one-time carbon expense like a plane trip; children typically go on to reproduce as well; each child made through ARTs must be assessed in terms of their carbon legacy, not just their carbon footprint.²⁹

Since “the long-term impact of a child born to a family in China is less than one fifth the impact of a child born in the U.S.” (Mortenson 2009) due to the use of resources (e.g., fossil fuels; air conditioning; large, free standing homes; disposable electronics; “retail therapy,” etc.) and a myriad of other lifestyle choices that parents engage in and provide for their child, we must consider if this alternative means of producing a child in countries where the environmental cost of living is so disproportionate to other countries is responsible. Even if a couple with children lives “off the grid,” when the children reach maturity they will likely emerge in a resource-driven society as adult consumers, then statistically the adult children will procreate and have to provide for their own children, and so in *ad infinitum*.

“Ecological concern as a virtue produces an attitude of respect and reverence for all God’s creation” (Curran 2011: 70), but personal demands lead to exploitation. If ARTs were not utilized, there would likely be 1% fewer babies born each year in the United States, and five million fewer worldwide. With the known impact on the environment, that’s not carbon footprint chump-change.

5 **Reproduction and Ecology: Towards a Solution**

The future of the Church, and indeed of the world, hinges on our ability to adapt to the most pressing concerns of citizens in the world and provide and support the means by which all can flourish. Questions of responsibility, procreation, assisted reproductive technologies, and the impact of new consumer-children on an over-populated, over-extended world must be seen in relation to duties

29 A carbon legacy refers to the cumulative effects on the environment of an individual’s reproductive life, and any children, grandchildren, etc. that they produce. A carbon footprint is simply the individual’s impact on the environment. All people have carbon footprints; some choose not to leave a carbon legacy by not reproducing.

to other humans and creatures that inhabit the planet. Theologians, ecologists, and bioethicists cannot afford to turn their back on the needs of the faithful considering reproductive options. "If we take the biblical tradition seriously, we will conclude that the moral goal of retrenchment is not just a matter of the quest for more abundant life on the part of the individual" (Blenkinsopp 1997: 50), it is also about engaging the needs of others and the reality of a collapsing ecosystem. I suggest that re-evaluating the morality of reproduction in all its forms in light of its ecological impact on both the number of people in the world, and in terms of the carbon impact, is necessary to come to a more comprehensive model of ecological ethics.

Of course, even non-procreative parenting will be in vain if consumption levels of these parents reflect current consumptive practices and this must be held in mind as well.

Suggesting alternative ways of parenting that both aid those already in need of parents and prevent future children from being born is an ethical and responsible challenge to the question of expanding one's lineage in a time of environmental problems. Furthermore, even after the environmental crisis wanes, these forms of alternative parenting will have further backing from theological and humanitarian sources. This only strengthens the case for green parenting today. Catholic teaching holds those without children are given the occasion for "other important services to the life of the human person, for example various forms of educational work, and assistance to other families and to poor or handicapped children" (Congregation for the Doctrine of the Faith 1987b: II B 8). Reorienting the desire for a biological child to loving others may occur in a multiplicity of ways that allows couples to realize the fruit and love of their union, without narrowly defining it to their biological spawn.

Margaret Farley notes, "a just love requires the recognition of this as the potentiality of lovers; and affirms it, each for the other, both other in the fecundity of their love" (Farley 2006: 228). For those who want to invest in the rearing of children, I will suggest three ways in which couples may fulfill their desire for children that is both "green" and biblical, while acknowledging that there are almost an infinite number of ways that singles and couples can and do "participate in the rearing of new generations" (Farley 2006: 227). Adding children to their homes may be done more or less permanently via the avenues of adoption, fostering, and spiritual parenting.³⁰

30 Of course embracing a childfree life is another alternative and a growing option for many couples as well.

5.1 *Adopting Children*

Maura Ryan points to the “enduring failure of the reproductive rights movement [is] constantly dissociating the needs of children and the desires of would-be parents” (Ryan 2001: 25). The most permanent, time and money intensive way in which a couple might seek to participate in green parenting is through adoption. Since “many have questioned the importance of meeting personal needs or desires or rights to bear genetically related children in a world that does not need any more children” (Ryan 2001: 35), adoption offers the chance for a child who was living without parents to find a loving home.

Although the adopted child who comes to live in a the home of a developed world parent [regardless of if the child was born domestically or internationally] will still face the disconcerting consumptive patterns so common to wealthy countries,³¹ “the principle of proportionality [allows] harm to otherkind only if the ecological and social values of the end outweigh the values lost in the use of means” (Nash 1993: 160). That is, raising an adopted child who already exists in the world may cause some harm to the otherkind in the environment, but the ecological value of caring for a child already in the world instead of creating a new child with appetitive needs in addition to leaving the orphan to be cared for in a subpar manner, outweigh the lost value of using resources. It is also far better, both from an environmental perspective and a social justice perspective, to adopt rather than procreate in emulation of the hortatory words of compassion in James 1:27a. “Religion that God accepts as pure and faultless is this: to look after orphans.” In such a way, a couple can fulfill this model of biblical adoption (Richie 2009), which has been a tradition of the Catholic Church (Cahill 2005a).

The benefits of adoption are obvious: where there is a child in need, and a family that wants a child, combining the two needs produces a beneficial situation for all. “Ensuring that children have families is always a greater priority than ensuring that childless couples have children” (Cahill 2005b: 209). Unlike natural and artificial reproduction, which creates one or more children added to the world population and demands use of natural resources, adoption looks to global answers to global problems.

Adoption could ease the plight of the orphan in the domestic and developing world and satisfy the desire for children. This is a good in itself. Yet it could also mean more resources used if there is a one-way stream of children to industrialized nations, and it is not a perfect solution to the multilayered issues of longing

31 The converse can be said of a developing world couple that adopts a national or international child: the carbon impact is much less.

for children. A more comprehensive paradigm would address issues of policy, xenophobia, and compassion to encourage couples to consider adoption as a primary and altruistic means of reducing population and environmental pressure by embracing a child that already exists, instead of creating more children.

5.2 *Fostering Children*

It would seem that adults who want children enough to consider having a biological child would want to have a child in their home until they reach adulthood, and therefore adoption would be aggressively sought. But there are other couples who see the value in taking care of more children on a less permanent basis through foster parenting. Because "people have children for many different reasons (to save a marriage or relationship, to have something to hold, to placate potential grandparents etc.) and often for no particular reason at all" (Auliso et. al. 2005: 88), there are many situations that can lead a child to be put into foster care. Just as orphans require a place to thrive, so too is it essential that foster children have the support of a loving home. In the same way that adoption in lieu of reproduction would result in fewer children and less impact because of the care of children already in existence, so too does fostering provide for the desire some couples have to raise children, and the desire that all children have for a family.

There are a vast number of children in the foster care system that desperately need homes. Rather than bringing individuals who would otherwise not exist into being, opening a home to those in want provides spiritual and emotionally for children and parents. The poem "De Rerum Natura" by Lucretius evokes the idea that opting out of procreation does not harm potential children because they do not actually exist, as if they were disembodied souls. He ponders, what loss were ours, if we had not known birth/ Let living men to longer life aspire/ While fond affections binds their hearts to the earth:/ But who never hath tasted life's desire, / Unborn, impersonal, can feel no death (quoted in Singer 1993: 125).

In contrast, those waiting for a home experience loss day after day. From pagans sentiments to Christian theology³² it is apparent that "Christian sexual ethics is in need of a shift from an emphasis on the acquisition of children to an emphasis on the care of children" (Ryan 2001: 166). This includes all children, not just those that are biologically related to us, or living under our

32 Tapestry adoption and foster care ministry is just one example of Christians galvanizing to give support to those seeking to become foster parents, and those who are already foster parents. See the Tapestry Adoption and Foster Care Ministry (2010).

roof. Fostering needs to be viable for both single and coupled adults if society wishes to reduce their carbon footprint, act with benevolence, and help the less fortunate.

5.3 *Spiritual Parenting*³³

Finally, one can participate in ecologically sound parenting by being a spiritual parent. This does not necessarily entail having children at home, but in molding other Christians to become godlier, teaching the truths of the Church, and forming a significant and lasting bond with another believer. In the ancient Church, these spiritual kinships were formed through conversions (O'Rourke Boyle 1997: 79) and of course through entrance into the monastic life where biological children were not an option (Lajoie 1996).

The Catholic Church teaches that some couples are “called to find an opportunity for sharing ... the source of spiritual fruitfulness” (Congregation for the Doctrine of the Faith 1987b: II B 8). Spiritual parenting is the continuation of the Great Commission of Matthew 28, the beginning of the Church, which for Christians replaced the Adamic covenant in Genesis 1 at the beginning of the physical world.³⁴ The Great Commission demands that believers make disciples, while the Adamic covenant required biological children. Consequently spiritual parenting is not only proposed to couples considering biological children, but indeed to all Christians, single or married.

An early example of spiritual parenting from the inception of the Christian Church is the relationship that St. Paul modeled with his protégé and spiritual “son” Timothy.³⁵ The giving of spiritual advice, mentoring in work and life, and spiritual encouragements were some of the aspects of Paul’s relationship

33 This among the other two modes of green parenting has the clearest roots in Christianity. Translating “spiritual parenting” into Hinduism could mean taking on a role of the guru; in Judaism the Rabbi relationship might be more significant. In the corporate world, we call this sort of investment “mentoring.” Becoming a schoolteacher, participating in a visiting student exchange, coaching a youth sports team, becoming a Big Brother or Big Sister, offering childcare for single parents, leading a Girl or Boy Scout troop, starting a non-profit organization [NPO] for inner-city children, donating time and money to organizations which support children and education, or becoming a loving aunt or uncle to nephews and nieces are all ways to express this concept apart from a Christian framework.

34 The Hebrew Scriptures are characterized by an obligation to reproduce physically, thus keeping with the notion of the Jewish people as the chosen ones of God. The Christian Scriptures are characterized by an obligation to reproduce spiritually, indicating God’s redemption of all nations. In the New Covenant there are no mandates to procreate, and Jesus himself did not procreate according to the Christian tradition.

35 See 1 Corinthians 4:17; 1 Timothy 1:18; 2 Timothy 2:1.

with his "adopted" son Timothy. Paul was not concerned with a biological heritage that reproduced his physical genes because Timothy was an eternal investment that would reproduce infinitely. This idea was capitalized on by John Chrysostom when he affirmed that "for Christians, seeking after posterity is superfluous. If you desire children, you can get much better children now, a nobler childbirth and better help in your old age, if you give birth by spiritual labor" (Chrysostom 1998: 26). Indeed, the Bible speaks of this exact situation in the eschatological chapters of Isaiah 54 and 56. Yahweh promises to give to "the eunuch who keep my Sabbath ... a name better than sons and daughters; an everlasting name that will not be cut off" [Is. 56: 4–5]. Likewise Jesus lauds those who might become "eunuchs for the Kingdom of Heaven" in Matthew 19:12. Some commentators on this pericope believe that "even for married persons there is a possibility of castrating oneself [metaphorically] and serving the gospel" (Luz 2001: 497).

Adults who truly want the eternal joy of parenthood can become a spiritual mother or father. For centuries those in religious service to God and neighbor have delighted in the process of creating, with the help of God, spiritual children who will carry the legacy of God's love into the world, "reproducing" at a much quicker rate than a biological couple could, and ensuring that unlike a physical genealogy, which can be obliterated at any moment, the spiritual impact will remain forever. This neither creates more children, nor does it expend any environmental resources.

Although I have used a Catholic methodology in favor of reducing the number of children born in the world, and thus the consumption of human beings, those who do not take Christian ethics to be normative can also find resonance in the basic ecological ideals of reduction and responsibility. The so-called "autonomous ethics" branch of Christian theology maintains that because all humans have access to reason and therefore the natural law, though the method of moral reasoning comes from various authority sources, the conclusion will be the same. Josef Fuchs writes, "the natural law is thus one of two parallel streams that flow from the same source: the eternal God" (Fuchs 1991: 11). Natural law, or the *humanum*, is the bounds that God has put into place for morality that cannot be altered by humans. Therefore, if it is ethical for Christians to reduce consumption and privilege rearing children already in existence rather than creating new children in a time of ecological peril, then it is ethical for all other people as well. Fuchs puts it succinctly when he says there are no "Christian" norms, but rather human norms (Fuchs 1983: 129). I would also add to this that there are no "natural" and "artificial" reproductive ethics when it comes to population growth and resource consumption. All people have the responsibility to limit or prevent biological children, and reduce the amount of resources

they consume. Clearly halting one's carbon legacy will make the biggest impact, but for those who find this untenable, reduction of one's family consumption is essential.

6 Conclusion

All people, in all countries, are responsible for limiting procreation with a view of ecological stewardship in mind. Likewise, resource consumption is not merely a predicament of people considering having children—all people in industrialized countries, even the very poor in developed nations—use more resources than the earth can afford to give. Ideally, every person would act with the conservationist ethic bestowed upon humanity in the Garden of Eden. However, this idyllic notion of stewardship is not occurring at this time, and until humans can reduce both population and resource use, reproduction and consumption that harms the planet cannot be accepted.

A serious assessment of the resources that the developed world are using—not only in the form of food and fuel, but also in the purchases that are made for growing a family and are sought in the pursuit of lifestyle must be scrutinized. The world simply cannot sustain the lifestyle that most of us in the developed world enjoy without seriously harming the planet. If ecological theologians are to respond to a world with seven billion citizens, responsible reproduction and consumption must be re-envisioned to include responsibility not to over-produce or over-consume. At this time, it necessarily means alternative parenting and consumption reduction.

Those who have no trouble conceiving must identify needs of others as equal with the wants of the self, and find Catholic support in using contraception. For those considering reproduction artificially, avoiding the ART business could be recommended. Alternative forms of parenting should also be promoted for all as the first means of satisfying the desire for children. Would-be parents from all walks of life must look at how reproduction and consumption affects current humans, plants and animals. In the event that one considering biological reproduction envisions a world of hunger, poverty, environmental degradation, melting ice caps, and growing injustice, perhaps stepping back from biological parenting, and exploring green parenting—adoption, fostering and spiritual parenting—will become the mark of ecological parents of the future.

A revision of procreative practices in light of ecological considerations will be a difficult idea for many people to be open to. Procreative limitation, personal sacrifice and the good of the other are not appealing topics for most people, but I believe that a renewed interpretation of our role of stewards of

the earth and the promotion of green parenting is essential at this time of eco-crisis.

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