

**Family planning as a solution
for climate change.
Bioethical dilemmas in the context
of sustainable development**

**La planificación familiar
como solución al cambio climático.
Dilemas bioéticos en el contexto
del desarrollo sostenible**

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Abstract

Climate change crisis is a global concern for the humanity and for achieving Sustainable Development Goals (SDG). One of the solutions proposed is family planning which plays a dual role. Firstly, family planning must ensure gender equality (SDG 5) and good health (SDG 3) that “strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries” (SDG 13.1). Secondly, it would make it possible to contribute to the reduction in population

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growth, which will turn lead to a reduction in the levels of greenhouse gas emissions. This article analyzes this dual role to determine whether family planning could be an ethical solution for climate change and for contributing to sustainable development for a better future of humanity.

Keywords: family planning, climate change, gender equality, public health.

1. Introduction

Family planning, as part of Sexual & Reproductive Health & Rights (SRHR) (1), and climate change are both of the 17 Sustainable development goals¹ (SDG 3, 5 and 13) (2). Family planning refers to two main methods. On the one hand, it includes Modern contraception² to avoid unintended pregnancy and infectious diseases, to choose the spacing of children (whether, when, what means and how many to have) and to increase educational and economic benefits (spacing children gives women the opportunity to continue higher studies and to be engaged in the market). On the other hand, family planning includes the possibility to end an abortion with all the medical attention to avoid unsafe ones.

In addition, the Intergovernmental Panel on Climate Change (IPCC), the United Nations Framework Convention on Climate Change (UNFCCC) and the Conference of the Parties (COP) do not mention family planning as a method to fight climate change. However, one of the cross-chapter of the IPCC 2022's report, based on Gender's study, suggested that "increased access to reproductive health and family planning services, [...] contributes to climate

¹ For the SDGs targets, check the appendix at the end of this article.

² Modern contraceptive methods include oral contraceptive pills, condoms, patches, implants, injection, intrauterine devices (IUD), vaginal methods, diaphragm, Lactational amenorrhea method, Standard days method, emergency contraception, female and male sterilization. Traditional contraceptive methods include periodic abstinence, withdrawal and Country-specific traditional methods.

change resilience and socioeconomic development through improved health and well-being of women and their children” (3, p. 2702). In the same context, some organizations claim that family planning must be a condition, or rather a solution for fighting the climate crisis. This is the case, for example, of one of the reports of WHO. The authors conclude by calling to increase family planning services in developing countries (4). The same applies to the International Planned Parenthood Federation (IPPF), supported by the United Nations. IPPF claims that family planning is necessary to reduce population growth and to facilitate climate adaptation and resilience (5,6). As for the NGO Project Drawdown, founded by Paul Hawken and led by more than 200 researchers, it presents family planning as one of the 93 different climate solutions (7). It is also the case of the United Nations Fund for Population (UNFPA) claiming that family planning, as part of SRHR, is “essential and a matter of human rights” for women and girls during climate crisis (8, p. 92), which echoes the SDG 13.1.

In this context, it is pertinent to ask these two main questions: does fighting against climate change and global warming justify the use of family planning as a solution to strengthen women’s sexual and maternal health [1] and as a solution to environmental pollution [2]? What are the bioethical dilemmas [3] that arise from such proposition of a solution? To respond to these questions, three categories of bibliographical sources form the basis of this reflection. First of all, there are certain UN texts and related studies. Then there is the extensive scientific literature, articles and books, on medical and environmental studies. Finally, the bioethical approach is based on Elio Sgreccia’s personalist model.

2. Strengthening women’s sexual and maternal health

According to the United Nations Human Rights Special Procedures’ report, climate change represents a challenge for the enjoyment of

human rights. It is about the right to life, the right to health, the right to food, the right to water and sanitation, the rights of the child and the right to a healthy environment (9, pp. 17-23). As a result, three potential impacts of climate change on SRHR can be identified in the context of SDGs: access de sexual reproductive health services [1.1], inequalities, sexual and gender-based violence [1.2] and maternal health [1.3]. Nonetheless, several factors play a fundamental role in these impacts.

2.1. Access to sexual reproductive health services

The access to sexual reproductive health services is a double target in SDGs 3.7 and 5.6. it can be threatened by climate change [1.1.1] and, also by medical and socio-cultural reasons [1.1.2].

2.1.1. Climate change as factor

On the one hand, some authors argue climate change threatens this access on two levels.

- a. As indicated by O. Leyser-Whalen et al. (10) and by the Human Rights Council (11, §13), extreme weather events, due to climate change, can destroy infrastructure of family planning services. Thus, this leads to a reduction of the quality, the accessibility and the availability.
- b. S. Barot, from the Guttmacher Institute, notes that during climate crisis, Sexual and Reproductive Health Needs of Women in Humanitarian Situations are unmet. In effect, destroyed sexual reproductive health's infrastructures are under-prioritized and unfunded compared to other infrastructures. Even it exists, in such conditions, a reproductive health kits containing supplies, contraceptives and equipment, the service delivery faces some serious gaps such as cultural norms, lack of security's and logistical research and financial barriers (12).

2.1.2. *Medical and socio-structural factors*

On the other hand, it would be a huge error to limit the lack of accessing the SRHR services only on the climate change crisis for two reasons.

- a. It is a fact that in some countries where there are no climate disasters, girls and women still have difficulties to access sexual reproductive health services. It is the case, for example, of Malta and Poland concerning abortion, or the case of Iceland, Switzerland, Czech Republic, Greece, etc. concerning contraception as revealed by the Contraception Policy Atlas Europe (13).
- b. A lot of women would not or could not access to these services for many reasons such as the contraception failure due to the age, or economic and medical factors as indicated by S. E. K. Bradley *et al.* (14), or socio-economic reasons as indicated by J. Sachs (15, pp. 188-189).

2.2. *Inequalities, sexual and gender-based violence*

SDG targets 3.3, 5.2, 5.3, 8.5 and 10.2 aim to protect women against violence and gender inequality. These inequalities and violence may be increased during climate change events [1.2.1], but they are also perpetrated by political and socio-structural factors [1.2.2].

2.2.1. *Climate change as a factor*

The Human Rights Council affirms that climate change is a challenge for the advancement of gender equality since women and girls are at higher risk during crisis such as weather events (11, § 5, 17 and 54).

Indeed, A. M. Thurston *et al.* demonstrated that sexual assault and violence against women and girls increase during and after disasters (84 % climate related) (16) severity and duration worldwide.

Disasters disproportionately impact women and girls, with some evidence suggesting that violence against women and girls (VAWG). In the same context C. Rousseau affirms that since climate disasters can lead to “disruption the daily life” (losing job and home), women and young girls may engage unprotected sex for pay or food to insure their survival (17). These events and the lack of accessing family planning lead to unintended pregnancies causing maternal and child health issues that “hampers national economic development” (5, pp. 5-6). In addition, these unintended pregnancies and their complications can widen the gender inequality gap by limiting access to social, economic and political life opportunities (6, p. 9).

2.2.2. Political and socio-structural factors

However, inequalities, sexual and gender-based violence are not just a climate change issue. Less economic opportunities are due to social and political systems regarding maternity. It is the case of France³. Despite the easy access to family planning services (18, p. 25), the pay gap between men and women persists, even though it has narrowed (19, p. 4) between 2000 (18.6 %) and 2019 (16.1 %). Some authors argue that this inequality is a consequence of maternity (20; 21, pp. 125-130). Nevertheless, despite the efforts made for realization of gender economic and gender equalities (SDGs 8.5 and 10.2), such as economic aid through maternity leave and maternity allowance, the gap always exists due to various factors, such as the work sector, positions of responsibility, discrimination at the time of hiring or in terms of bonuses.

In addition, sexual and gender-based violence, to be banned according to SDGs 5.2 and 5.3, is not fundamentally, but occasionally, a climate change problem. Such violence takes many forms, and legal authorities sometimes perpetrate it. Several categories of women and girls are subjected to sexual violence, such as coercive contra-

³ I chose France since I live there and since the country ranks 6th worldwide for implementation of the SDGs, according to the 2023 Sustainable Development Report.

ception and sterilization. It is the case of HIV positive women especially in Africa (22–24) and women with mental disabilities in United States (25) and in European Union (26) as noted by the United Nations (27, § 29). It is also the case of women belonging to ethnic minorities (indigenous peoples) such as the Romani in Slovakia (28,29) or to different ethnic groups such as the Ethiopians in Israel (30-33) between 2004 and 2005. In addition, it was also the case of women with social problems, such as drug addicts, in the United States, mainly in California, Nebraska and Texas (34,35), between 1991 and 1993.

2.3. Maternal health

Maternal health is a main target of SDGs 3.1, 3.2 and 3.7. If climate change has a role in this domain [1.3.1], it is also important to look into the medical aspect in which several consequences and risks resulting from family planning methods affect the woman's health. [1.3.2].

2.3.1. Climate change as a factor

The IPPF argues that climate change has an important impact on maternal health (6, p. 8). Indeed, lack of access to clean and potable water may affect the woman's health during pregnancy, childbirth and even "the administration of certain contraceptive methods" (6, p. 8). As confirmed by IPCC, clean and safe water is important to strengthen the climate resiliency human health (3, p. 22) especially that "changes in temperature, precipitation and water-related disasters are linked to increased incidences of waterborne diseases" (3, p. 50).

In addition, P. Poursafa *et al.* affirm that hot or cold weather could lead to many health issues such eclampsia, preeclampsia,⁴ cataract,

⁴ Preeclampsia is a hypertension between the 20th week of gestation and the second week after delivery. Eclampsia is unexplained seizures that occurs to pregnant women, especially those who have preeclampsia.

low birth weight, pulmonary tuberculosis, hypertension, sex ratio and length of pregnancy (36, p. 398). Many other studies describe other issues such gestational diabetes (37), threatened/spontaneous abortion, renal diseases, infectious diseases (38), preterm birth and feral growth lag (39).

Moreover, the Human Rights Council specifies that climate change can affect the mental health of women such as stress-related disorders and depression (11, § 9 and 12).

In this context, to reinforce pregnant women's ability to adapt to climate change and to avoid/reduce all these health issues, using voluntary spacing children through modern contraceptives or through safe abortion in case of unintended pregnancy is encouraged by family planning's programs (6, p. 9).

2.3.2. Medical factors

However, the impact on maternal health cannot be approached solely from this point of view, in which climate change is a major factor in health problems. It is also important to look at this subject from the opposite angle. Numerous scientific studies have highlighted the possible risks, consequences and side effects of family planning, particularly some modern contraceptive methods and abortion, on maternal health.

On the one hand, hormonal contraception can lead to many health consequences and risks such as eclampsia, preeclampsia, hypertension, threatened/spontaneous abortion, preterm birth and fetal growth lag, gestational diabetes (40, pp. 105-111), breast (41) but information on associated risks is limited. We aimed to assess breast cancer risk associated with current or recent use of different types of hormonal contraceptives in premenopausal women, with particular emphasis on progestagen-only preparations. Methods and findings Hormonal contraceptive prescriptions recorded prospectively in a UK primary care database (Clinical Practice Research Datalink [CPRD]), uterus cervix and liver's cancer (42, pp. 283-293, 295-296),

liver issues (40; 43, pp. 158-169). The thromboembolic diseases (44) is also frequent and can lead to the death: in the United States, for example, between 136 and 260 young and healthy women dies venous thrombosis because of hormonal contraceptive use (45). In addition, hormonal contraception can lead to autoimmune diseases (46,47), psychological and psychoneuroendocrinological problems such as depression and post-partum depression (48), memory alteration (49-53) and sexual behavioral changes due to brain malfunction (54, pp. 102-144; 55). As for the copper IUD, it may contribute to anemia, pelvic inflammatory, miscarriage (56, p. 156) and pregnancies with IUD (57).

On the other hand, even if this fact is ignored, concealed or taken lightly, safe abortion can have short-or long-term consequences and risks for a woman's health. Surgical abortion may cause bleeding or hemorrhaging, damage to pelvic vessels, bowel, bladder, fallopian tubes and ovaries (58). As for medical abortion (pill), it can cause cramping and severe vaginal bleeding with abortion failure, necessitating surgical intervention (59–61), placenta accreta (62), hypotension, sinus tachycardia, myocardial infarction, cervical laceration, uterine rupture, uterine infection (63). As for psychological risks, induced abortions can cause anxiety or depression (64,65), suicidal thoughts and posttraumatic stress reactions (66). After Covid-19, abortion by telemedicine has been developed in many countries, such in the United States and in France. This type of abortion has many consequences on maternal and fetal health due to the lack of pre-abortion care (physical examination, ultrasound, checking on medical history screening for genital tract infections, checking for ectopic pregnancy). As a result, several consequences occur such as uterine rupture (67,68), abortion failure and intrauterine fetal demise causing maternal health complications (69).

This overview shows that climate change is just one of many factors that can have an impact on women's sexual and maternal health. Over and above that, family planning methods promoted to avoid the consequences and risks of the impact of climate change

may themselves be the cause of those same consequences and risks which is paradoxical for a solution to a problem.

3. Reducing environmental pollution

One of the reasons of climate change is the high level of Greenhouse gases (GHGs) emission, mainly the carbon dioxide (CO₂).⁵ Some authors argue that population growth is responsible for the big amount of these emissions and family planning would be a solution [2.1]. Other studies show that some of family planning methods are a factor of environmental pollution and GHGs emissions [2.2].

3.1. Greenhouse gases emissions and population growth

As the IPPF suggests, family planning is a solution to reduce the GHGs in the atmosphere. Thus, Project Drawdown researchers established a scenario in which family planning, between 2020 and 2050, could reduce the CO₂ emissions by 69.90 gigatonnes (Gt). The estimate that 55 % of this amount (37.9 gt) would be in low- and middle-income countries and 45 % (31 gt) in high-income countries. In this case, some authors suggest that by reducing population growth through family planning, it is possible to reduce GHGs emissions [2.1.1]. However, some studies show that such relation is not accurate [2.1.2].

3.1.1. Family planning and reducing population

B.C. O'Neill *et al.* assert that “policies that slow population growth would probably also have climate-related benefits” (70); J. Bongaarts and R. Sitruk-ware affirm that “slower future population growth

⁵ The major 5 GHGS are: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), water vapor (H₂O) and fluorinated gases (hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride).

could reduce emissions globally by an estimated 40% or more in the long term” (71, p. 233). R. N. Proctor and L. Schiebinger sustain the idea that “if the world’s total population were eventually reduced by 10 percent, this would reduce carbon emissions by 3.6 billion tons per year, which is more than the total combined emissions of Germany, Japan, Brazil, Turkey, Mexico, and Australia” (72). For some others, banning abortion would lead to a surplus of unwanted children. It is the case of T. Joyce et al who affirm, already in 2012 before overturning *Roe v. Wade* (June 24, 2022), that “abortion rates would fall “If *Roe v. Wade* were overturned] abortion rates would fall by 14.9 percent” in the United State, which leads to arising the unintended births to “178,804 additional births or 4.2 percent of the national total” (73, pp. 4 and 22).

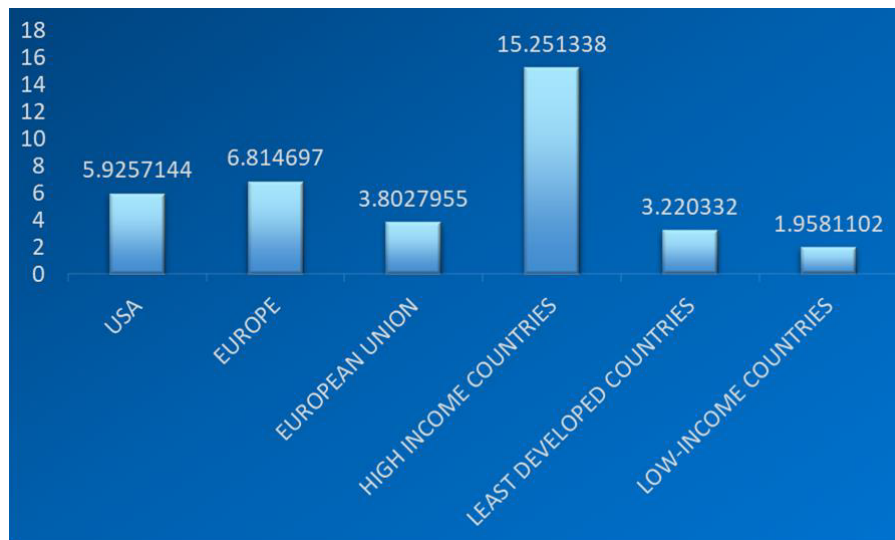
3.1.2. *Paradoxical data*

However, two points must be taken into consideration. First of all, if banning abortion would lead to a surplus of unwanted children due to unintended pregnancies, two studies of J. Bearak *et al.* and a report of the Guttmacher Institute show that “unintended pregnancy and abortion occur worldwide, both where abortion is broadly legal and where it is restricted” (74–76). Between 2015 and 2019, unintended pregnancy rate was 59 % and abortion rate was 41 % in countries where abortion was broadly legal. In countries where there are some restrictions for abortion, unintended pregnancy rate was between 70 and 79 %, and abortion rate was between 36 and 39 %. This means that there will be always unwanted children even abortion is legal.

Secondly, if we admit that population growth is responsible of high level GHGs emissions, these emissions should be higher in least-developed and low-income countries than high-income countries where family planning is easy to access. Still, while in developing countries rate of unintended pregnancies is 62-76/1000 women, in developed countries, it’s still high (42-56/1000) despite facilities

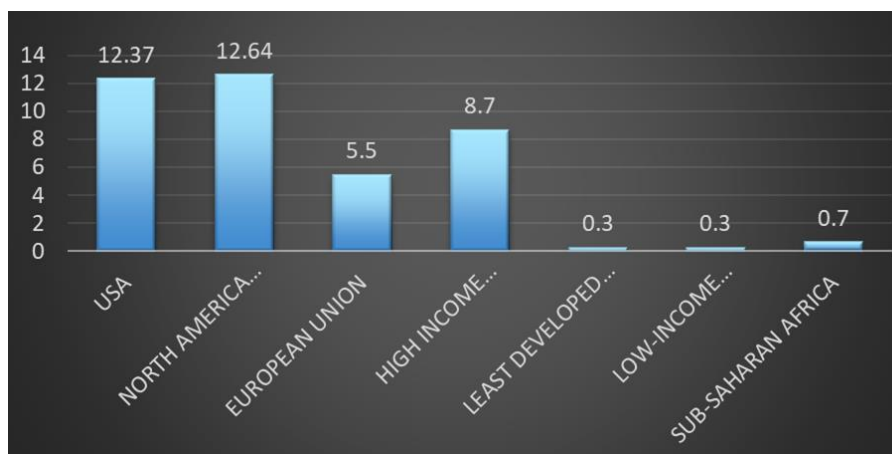
accessing to family planning services as J. Bearak et al. demonstrated (75). In addition, K. E. Hawkins states that the impact on the climate for a child in a developed country is much greater than in a developing countries as shown in Graphics 1 and 2 (77). Statistics based on an Oxford site (Our World in Data) (78) and the World Bank Open Data (79) show concretely these facts.

Graphic 1. CO2 Gt/Region in 2021



Source: Our World in Data. Available at: <https://ourworldindata.org/grapher/ghg-emissions-by-world-region>

Even the CO2 emissions per capita are lower in least-developed countries than the higher-developed ones as the chart below shows.

Graphic 2. Tonnes of CO2 per capita in 2020

Source: World Bank Open Data. Available at: <https://data.worldbank.org>

Consequently, it is paradoxical to understand how family planning, supposed to reduce the population growth, could contribute to the reduction of CO2 emissions when the rate of emissions is higher where abortion is legal and contraception is easily accessible.

3.2. *Environmental and public health*

As explained above, climate change could affect the family planning services. It is wise to ask the question from another point of view. What are the possible impacts of family planning, precisely contraception, on the environment? Since, the methods are numerous, it is more accurate to analyze the most used modern one according to United Nations, Department of Economic and Social Affairs, Population Division (80): two of mechanical barriers [2.2.1] and oral contraceptive pills as hormonal methods [2.2.2].

3.2.1. Mechanical barriers and global warming

The most used mechanical barriers are condoms and Copper IUD. These methods are involved in greenhouse gas emissions directly (condoms) and indirectly (Copper IUD).

a. Condoms

Condoms are mainly fabricated from natural rubber and synthetic rubber (polyisoprene or polyurethane). Two studies have highlighted the environmental impact of condoms' production. Analyzing the life cycle of natural rubber condoms, W. Jawjit *et al.* demonstrated that the phase of condoms' production (fresh latex production, concentrated latex production, condom production, condom transport, condom use and disposal) - succeeding the first phase of preparation (tree planting, latex extraction, latex transport, diesel use, electricity use, chemical use and packaging) - participate for around 52 % to global warming. The condom disposal phase participate for around 45 % of global warming (81). The results are almost the same in M. Birnbach *et al.*'s study (82). Both studies highlighted the condoms transportation's impact on GHGs emissions. W. Jawjit *et al.* quantified this impact by studying transportation by container ships: "the impact from international transportation from Bangkok to Beijing" is between 95–98% (81, p. 103). M. Birnbach *et al.* estimated that air transport would be accounted for 60% of total GHGs emissions (82, p. 976).

As for synthetic rubber condoms, W. Jawjit *et al.* state that the environmental impact of polyisoprene condom's production process "is ~2–2.5 times higher in the cases of global warming" due mainly to electricity consumption without forgetting the impact on human toxicity (81, p. 108). In addition, polyurethane production has a huge environmental impact due to the use of petroleum, thus contributing to the emission of GHGs emissions. And since it is non-biodegradable, it has an impact on "diverse fields such as aquatic life, soil health, plants, and humans" (83, p. 406).

b. Copper IUD

There are no direct studies on the impact of Copper IUD's production on global warming. However, various studies show the impact of the materials used in its production, namely plastic and copper.

F. Chaddad et al. demonstrated that deforestation to exploit copper mines, in the Amazon rainforest, leads to an increase in ground temperature, with significant CO₂ emissions which contributes to climate change (84). Copper production has a significant impact on GHGs emissions due to the "intensive energy consumption (electricity, fuel use, transportation, etc.), as explained by D. Dong et al. (85). The Committee on Copper in Drinking Water & National Research Council in the United States have also presented the impact of Copper on water and human toxicity (86).

To be clear, I am not suggesting that the production of Copper IUD has any causal effect on the environment, but simply pointing out what studies show about the raw materials used in this contraceptive, which needs an attention and further direct studies on the subject.

3.2.2. Oral contraceptive pills and endocrine disruption

One of the main SDGs targets is having good health to be more resilient when facing climate change events (SDG 13.1). Having good health means having good food and water quality. Since the Wingspread declaration on 1991 (87), endocrine disruptors have been known to be harmful for all kinds of life. Pollutants and toxins (pesticides and other chemicals) have an impact on SRHR by disrupting the ability to maintain the safe and sanitary conditions required to have a good health. M. J. Piazza and A. A. Urbanetz specify that these impacts are especially "on the genital area, ovarian steroidogenesis, polycystic ovary syndrome, endometriosis, the structure of the uterus and the vagina, and on the formation of leiomyomas [uterine fibroids]" (88, p. 154). Several studies show that hormonal contraception (especially the synthetic estrogen,

17 α -Ethinylestradiol or EE2), as an endocrine disruptor originated from human excrement (particularly urine), has an important impact on aquatic life and human life, which could influence the quality of resilience facing climate change.

a. Aquatic life

Studies show that EE2 affects the aquatic life on numerous levels. C. Minier *et al.*, C. R. Tyler and S. Jobling have noticed a feminization of the male through the production of vitellogenin (protein as embryonic nutrients, commonly known as egg yolk) and intersexuation (presence of developing oocytes in male testicles) (89,90). S. Jobling *et al.* and X. Qin *et al.* have highlighted reproductive disturbance due to delayed spermatogenesis, with poor sperm quality leading to reduced fertility (91,92). M. Saaristo *et al.* have noted a behavioral change altering the male mate choice (93). A. Kidd *et al.* have highlighted a near extinction of a whole species of fish from a lake in north-western Ontario, Canada (94).

Since aquatic food has a major role in sustainable healthy diets because it contains “unique qualities and nutrients, such as iron, zinc, calcium, iodine, vitamins A, B12 and D, and omega-3 fatty acids” and since its production “has a lower environmental impact than the production of most terrestrial animal-source foods” as states the UN Nutrition department (95, p. 5), “greater production and consumption of aquatic foods depend on a host of factors, be they physical or environmental” such as water pollution (95, p. 37). This means that disrupting aquatic life may have a huge incidence on the completion of SDG 2.1 (nutritious and sufficient food), SDG 3 (health), SDG 6.3 (good quality water) and SDG 14.1 (reducing marine pollution), which lead to fragile human health to face climate change.

b. Human health

There is little scientific literature on the impact on human beings of exogenous EE2 from water. However, a number of studies on

human and animal have shown the potential health effects of EE2. Already, M. Cargouët *et al.*, S. Jobling and R. Owen have demonstrated that EE2 from the residue of contraceptive pills is present in water even after passing by water treatment stations (96-98). M. Joyeux asserts that the cumulative exposure to EE2 over 70 years by drinking 2 liters of tap water a day would be 2.5 ng/l (99). It is important to note that the effect of EE2 lies not in quantity but in the fact that it is resistant to biodegradation and in the fact of its mixture with other endocrine disruptors known as “cocktail effect” as proved by V. Delfosse *et al.* (100).

Taking all these factors into account, studies showed that female mice⁶ exposed to low doses of an exogenous EE2 have experienced maternal behavior and emotional alteration (101,102) and some obsessive compulsive disorder (OCD) behavior such a repetitive behavior during lactation (103).

As for men, D. Margel and N. Fleshner has demonstrated a significant correlation between EE2 in environment water and prostate cancer (104) and that is due to the presence of estrogen receptors in the human prostate, as demonstrated by H. Bonkhoff (105) but more recently estrogens and their receptors have also been implicated in prostate cancer development and tumor progression. Methods Recent experimental and clinical data were reviewed to elucidate pathogenetic mechanisms how estrogens and their receptors may affect prostate carcinogenesis and tumor progression. Results The estrogen receptor beta (ER β). For their part, M. Rolland *et al.*, the Weybridge report, A. Marques-Pinto and D. Carvalho have noted an important correlation between endocrine disruptors and men’s fertility due to the sperm’s quality and quantity (106-108).

In addition, the use of oral contraceptives has an impact on fetal growth and health, which is a target of SDG 3. Experiences on fetal mouse showed many consequences. B. Timms *et al.* have noticed an alteration of the fetal mouse and prostate urethra alteration (109). D.

⁶ Since experiments on humans cannot be performed, those carried out on laboratory animals enable us to have some conclusions.

K. Waller et al. have noted that the use of OC during the first 3 months of pregnancy is associated with hypoplastic left heart syndrome and gastrochisis (110). N. Meyer et al. have highlighted that EE2 in drinking water caused an increase in placental weight, affected the process of angiogenesis and increased the fetal volume compared to gestational weeks (111). G. Delbès et al. noticed that the exposure to estrogens (endogenous and exogenous) may induce a disorder in fetal and neonatal testicular development (112).

4. Bioethical dilemmas

The analysis in the preceding pages and the various points of view highlight three main bioethical dilemmas: social justice [3.1], health [3.2] and The human relationship with the environment [3.3].

4.1. Social justice

It is a fact that some correlation could exist between population growth and climate change caused by GHGs emissions. But as shown through Oxford site (Our World in Data) (78) and the World Bank Open Data (79), the emissions are higher in developed countries with low birth rates than in less developed countries with high birth rates. According to a study by the Oxford Committee for Famine Relief (OXFAM), "the poorest half of the world's population is responsible for only around 10% of global emissions [...] while the richest 10% of the planet are responsible for around 50% of global emissions" (113). D. Satterthwaite explains that such difference and such high emissions are caused by the increase in wealth and consumption behavior (114, pp. 564-566). This is why he asserts that "it is not fair to equate increases in GHG emissions per person among low-income populations (say from 0.1 to 0.5 tonnes of CO₂e per person per year) with comparable GHG increases among high-income populations (for instance, from 7.1 to 7.5 tonnes per person

per year)” (114, p. 551). This is why population growth would have significant impact only if it is associated with high levels of consumption behavior. In consequences, social justice means not blaming underdeveloped countries, especially when it comes to population growth, for global warming. This has already been confirmed by the International Conference on Population and Development (ICPD) pointing out that environmental problems, and climate change in particular, are "largely driven by unsustainable patterns of production and consumption" (115, § 1.2).

In this context, family planning as a solution for climate change, especially as promoted for the poor population, constitutes a direct attack on the principle of social justice. On the one hand, ICPD says clearly that “in no case should abortion be promoted as a method of family planning” (115, § 8.25). On the other hand, it takes a bad source management using a coercive population control on poor populations.

4.2. Health

The logic of family planning as a solution for climate change is to make people, especially women and fragile ones, more resilient by having a good health. So be it! Nevertheless, at what price? It would be obvious to say: health itself.

- a. First, women are the first to pay for the consequences of family planning physiologically and psychologically. Rather than constructing facilities and clinics to help women understanding their bodies and their menstrual cycles, completing the pregnancy with maternity cares follow-up to avoid difficulties, family planning presents, directly or indirectly, women’s fertility, pregnancy and maternity as the source of environmental degradation and climate change. This results in a pressure on women to make the “right choice”, as explained by A. Otzelberger (116, p. 3). But, what is the right to choice

to make? The right choice can be only understood if it is made with sincere freedom. And freedom requires to have the possibility also to choose having a child, and not simply refusing one. This is the real condition for realizing the SDGs 3.7.

- b. Second, what about the men's and the environment protection? Since SDGs interact transversely, it seems illogical and unethical to consider that to reduce CO2 emissions, we must resort to population reduction, when there is no evidence of a causal link, through contraceptive methods, which themselves have impacts on health and climate change through CO2 emissions upstream, during and downstream of their production, and through residues found in nature. This brings us to the third dilemma.

4.3. The human relationship with the environment

It seems that the primary focus of presenting family planning as a solution is climate change itself. This fact reflects a certain anti-anthropocentric thinking and an eco-centric ethics (117, pp. 756-765) by conferring nature an intrinsic value. As a result, the moral value of nature takes precedence over that of human beings. As E. Sgreccia states: "human being loses his central role within the natural world to the point of being considered an integral part of environmental reality, and the natural elements are seen as subjects capable of underlining relations of a moral nature with human being" (117, p. 756).

In this context, to found an environmental ethic with the aim of preserving it, it is impossible to do so without placing the human being at the center of all reflection and action. The reason is: since bioethical discourse, in order to have an integral approach, must take into account metaphysical and ontological dimensions, it is important to return to the *scala naturae* or the great chain of being derived from Plato and Aristotle. The human being is placed above the terrestrial creatures, by extension, the nature. However, this primary

place has not to be considered as a position of dominance, in a utilitarian sense, where human being, in the name of freedom, takes advantage of everything for his own benefit. It has to be a position of responsibility (117, pp. 770-771) where nature, in this particular case, climate change, has to be treated as good, a common good that needs to be preserved, but not to the detriment of human dignity (health, freedom, autonomy, worth, physical integrity, etc.) of the present and the future generations.

5. Conclusion

The analysis in the preceding pages leads to this conclusion: family planning, particularly contraceptives, is not a suitable means of combating climate change and achieving the goals of sustainable development, whereas reducing consumption and adopting an appropriate lifestyle is a healthy and responsible attitude to make it possible. Thus, the conflicting studies and the unclear correlation between climate change and population growth invite us to be prudent and cautious while considering family planning as a solution to fight climate change. More in-depth and detailed studies are needed to get a better grasp of the subject.

In the meantime, to better reconcile health preservation, procreative choice and environmental interest, I propose three fundamental attitudes which can only be effective in the long term and they need good programs for their applications.

a. Education

Everything begins with a good education and procreation is not exempt from it. This is why sexual life should not be considered as a spontaneous biologism, nor only from freedom's perspective without ethical standards, nor through coercive plans to serve ecological ideologies. Procreation is not only a female matter. It is a couple

matter where man and women decide together when, how and how many child they want. Sustainability in this case is to give equally (SDG 5) the decision for both partners.

In addition, to have a healthy sexual life is to give young girls (even young boys) a good sexual education that respect their bodies through objective and scientific information to be more aware of and respectful towards each person. This begins by knowing the sexual functions of human bodies understanding a woman's fertility, which leads to the second attitude.

b. Fertility Awareness-Based Methods

Since, as demonstrated, modern contraceptive methods have an environmental and health impacts, other methods exist that are neither polluting nor harmful to health and that are respectful towards couples' relationship. It is about Fertility Awareness-Based Methods (118) that are effective (119,120) if women and couples are trained. More respectful of sustainable development (SDGs 3, 5, 6, 8, 13 and 14), these methods are as follows:

- Calendar-based methods: Ogino-Knaus + Standard Days Method
- Symptoms-based methods: TwoDay Method, BBT method, ovulation method (Billings), symptothermal method (WHO, 2018)
- Creighton Model FertilityCare™, Marquette Methods, Fertility Education and Medical Management (FEMM), FemTech (smartphone applications, caluclothermia, LH strips or "ovulation tests", connected bracelet, pocket microscope, Proov urinary strips).

c. Responsible production/consumption behavior

As demonstrated, the lifestyle is a big factor of climate change. One of sustainability conditions to fight the environmental crises is

adopting a healthy and responsible production/consumption behavior as recommended particularly by SDG 12.1, 12.2 and 12.8. This demands that each person, each family, each community and each country should take responsibility of each act in everyday life. This is why, the United Nations Department of Economic and Social Affairs calls for solutions independently from demographic trends to achieve a better sustainability. It declares that “high-income and upper-middle-income countries should acknowledge their disproportionate contributions to global environmental damage and take the lead in building a more sustainable economic system for the benefit of future generations” (121).

Yet, the crucial question remains: who would be prepared and willing, particularly in developed countries, to sacrifices in everyday life?

Appendix

SDG 2.1: by 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.

SDG 3.1: by 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births.

SDG 3.2: by 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births.

SDG 3.3: by 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases.

SDG 3.7: by 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes.

SDG 5.2: eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation.

SDG 5.3: achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.

SDG 5.6: ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences.

SDG 6.3: by 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.

SDG 8.5: by 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value.

SDG 10.2: by 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status.

SDG 12.1: implement the 10-year framework of programmes on sustainable consumption and production, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries.

SDG 12.2: by 2030, achieve the sustainable management and efficient use of natural resources.

SDG 12.8: by 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature.

SDG 13.1: strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.

SDG 14.1: by 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.

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