

Challenges

There are a number of important challenges that we must consider as we embark on a greener contraceptive agenda.

- **Cost:** We need to consistently weigh the cost of the final “greener” product with higher retail cost to the consumer or procurer.
- **Funding:** Much of current contraceptive research and development innovation is funded by donors. It is unclear whether there will be sufficient donor interest to foster green research and development practices.
- **Knowledge and Expertise:** Manufacturing green contraception requires a unique combination of expertise and knowledge across basic science and engineering.

Next Steps

- Obtain input from a larger group of experts including researchers, organizations, companies, and funders
- Conduct a cost-benefit analysis
- Explore the principles of green chemistry
- Better understand green manufacturing
- Impact current research
- Incentivize company participation
- Leverage readily available opportunities to implement greener practices

Reproductive Health Technologies Project

1020 19th Street NW
Suite 875
Washington, DC 20036
P: 202-530-4401
F: 202-530-4404
E: info@rhtp.org

Population Council

One Dag Hammarskjold Plaza
9th Floor
New York, NY 10017
P: 212-339-0500
F: 212-755-6052
E: pubinfo@popcouncil.org

Meeting Participants:

- Kirsten Moore, RHTP
- John Townsend, Population Council
- Diana Blithe, National Institutes of Health
- Jeff Spieler, U.S. Agency for International Development
- Tracey Woodruff, University of California -San Francisco
- Anna Kaminsky, Planned Parenthood - Greater Northwest
- Valerie Tarico, practicing psychologist
- Jane Hutchings, PATH
- Patricia S. Coffey, PATH
- Laura East, PATH

Citation

Moore K, Townsend J, Spieler J, et. al. A greenprint for sustainable contraceptive research and development. *Contraception*. Published online 12 September 2012.

THE GREEN PRINT



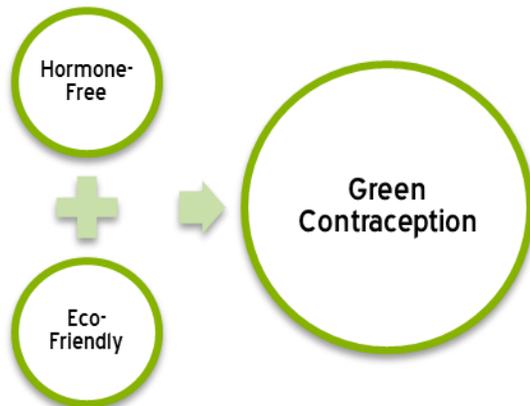
FOR SUSTAINABLE **CONTRACEPTIVE**
RESEARCH AND DEVELOPMENT

Contraceptives are critical for women's health and quality of life. Being able to determine the timing, spacing and number of children benefits both women and their offspring. With the world population expected to reach 10 billion by the end of the century, it is important that our research and development agenda (R&D) for contraceptives reflects both our concern for women's health and preventing pregnancy and disease as well as our concern for the environment.

In November 2011, Reproductive Health Technologies Project (RHTP) and Population Council convened a small meeting of reproductive and environmental health experts to flesh out a conceptual framework for a green contraceptive R&D agenda. This "green print," the result of that meeting, starts to lay out our vision for a green contraceptive R&D agenda, describes the challenges and opportunities for pursuing this agenda, and provides ideas for next steps.

WHAT IS GREEN CONTRACEPTION?

"Green contraception" is a somewhat redundant term. Since the environmental impact of a contraceptive pales in comparison to the impact of another person, any effective contraceptive is "green," but green contraception can mean something more. It can be used to describe a method that causes minimal harm to the environment, consistent with other sustainable or environmentally-friendly practices or products. "Green contraception" may also mean hormone-free for those who view synthetic or extra hormones as undesirable or unnatural.



A LIFE CYCLE ASSESSMENT FOR GREEN CONTRACEPTION

As a woman's and man's contraceptive needs change at different times in their lives, different contraceptives will be appropriate. Instead of trying to find the one "ultimately green" contraceptive method, it is more valuable to look at greening the process by which contraceptives come to the market and are used by consumers.

1) Resources and Materials

The availability of naturally occurring resources and manufactured materials influences how a product is conceptualized and designed and what remains after consumer use of a product. Innovation in what materials are used and how they are used can lend itself to the creation of more efficient, more sustainable, and less wasteful contraceptive products.

2) Concept and Design

Contraceptive products can also be designed to incorporate green principles throughout the remaining phases of the life cycle. It is possible to create new contraceptive methods that are environmentally friendly and/or hormone free. Existing contraceptive products can be modified to decrease bioactivity while maintaining efficacy.

3) Manufacturing

The process of manufacturing contraceptives can be improved to decrease waste and reduce the carbon footprint. Contraceptive manufacturers and industry in general would benefit from a set of green standards for manufacturing that could be adapted to production occurring in different settings. Green manufacturing is not only beneficial to the public and the environment but it is also a marketing advantage for companies.

4) Packaging and Transport

As with many other products sold in the United States, birth control products often have several layers of packaging, some of which may or may not be eco-friendly. The amount of waste could be reduced by reusing the packaging, decreasing the amount of packaging initially included, or by creating totally new packaging concepts.

Internationally, building capacity to produce contraceptives in-country would cut down on shipping costs, trade tariffs, and pollution from transportation. Increasing local capacity for high quality production could strengthen in-country contraceptive supply chains so that the supply of contraceptives meets the actual demand and none are wasted and unnecessarily disposed.

5) Consumer Utilization

Different products appeal to consumers for different reasons. The same rule applies when women and men are considering what contraceptive product to use. Their decision may be influenced by side effects, accessibility, cost, convenience or by other factors such as how long the product lasts, how effective it is, or how it impacts the environment. In addition to influencing the development, production, and distribution of contraceptives to be more environmentally-friendly, it is also possible to make green contraceptives more appealing to consumers.

6) Waste and Disposal

Waste and disposal has two distinct aspects. One pertains to the physical elements of the contraceptive such as the packaging and the device itself (e.g., condom, IUD, or injection device). Second, a woman using hormonal contraceptives excretes a minimal amount of excess synthetic estrogenic compounds via urine. Also, contraceptive rings and implants contain active and potent hormonal ingredients even after they are removed from the body and disposed of. Although the amount of estrogenic compounds from hormonal contraceptives in water supplies is low compared with other industrial processes, livestock, fertilizer, and pesticides, they are having some negative impact on the environment.

Ensuring the safe disposal of unused, unwanted, or expired contraceptives, recycling various components, and improving the removal of estrogenic compounds from wastewater could contribute to a greener life cycle.