

INDIAN FERTILITY SOCIETY Pioneering Sustainable Fertility Solutions

June 2025

4th Green ART News Bulletin

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On the Occasion of

World Environment Day 5th June, 2025

IFS Proudly Launched its Green IVF Centres Initiative



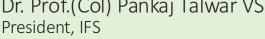
a step towards Promoting Sustainability in Reproductive Healthcare



From the President's Desk..



Dr. Prof.(Col) Pankaj Talwar VSM





When we heal the Earth, we heal ourselves **Enhance fertility with Green initiatives!**

In the realm of reproductive health, in vitro fertilization (IVF) has emerged as a beacon of hope for couples facing infertility. However, as the demand for fertility treatments escalates, so also the need to address the environmental impact of these practices. This initiative explores the concept of Green IVF—an innovative approach that prioritizes sustainability without compromising the quality of patient care.

By examining the environmental challenges associated with traditional IVF and presenting actionable solutions, this project aims to inspire a shift toward more ecofriendly reproductive technologies. Traditional IVF practice is largely resourceintensive, that results in a considerable carbon footprint and contributes to environmental degradation. To recognize these grey areas and bring about a paradigm shift in how we introduce green changes in our IVF setup, is of paramount importance.

Green IVF represents a significant evolution in the landscape of reproductive medicine. As we continue to innovate and refine the IVF techniques, the dual goals of enhancing patient outcomes and reducing environmental impact can be achieved; at the same time contributing to lower operational costs, making fertility services more accessible in the long run.

Thus, the Green IVF Initiative aims to catalyze dialogue among healthcare professionals, researchers, and patients, inspiring collaborative efforts to embrace sustainability in IVF practices. By initiating the Green IVF Project in India, Indian Fertility Society (IFS) strives to pave the way for a more responsible, compassionate approach to reproductive health that honors the well-being of future generations.



Green IVF- Sustainable IVF program: A Novel initiative by Indian Fertility Societ

Dr. Prof. Shweta Mittal Gupta Secretary General, IFS

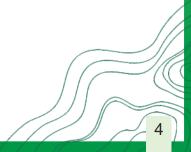


Our environment is the foundation which plays a pivotal role in ensuring our health, economy and well-being. Climate change, resource depletion, and pollution affect every facet of life. There is an urgent need to shift toward sustainable practices which is felt by everyone, including industries like healthcare and assisted reproductive technologies (ART). In a world where IVF and other ART procedures are becoming more common, especially as people turn to these treatments to build families, it is vital that we consider the environmental implications of these technologies. The green world is not just an abstract concept, it's about ensuring a healthy future for all of us, both in terms of the planet's ecosystem and the next generation. There is an urgent need to tie this idea of a "green world" directly to ART and inculcate the habit of sustainable living.

By integrating green technologies and sustainability into ART, we intend not only to minimize harm but also to pave the way for future innovations that will benefit everyone. Countries like India, with growing IVF markets, can pioneer "Made in India" green IVF technologies that can reduce the global carbon footprint. Afterall, green world matters to us all, and by making the IVF process greener, more efficient, and more eco-friendly, we're contributing to a 'healthy' future where both people and the planet can thrive

This innovative step taken by Indian Fertility Society aims at sensitizing ART clinicians, embryologists and stake holders who will collectively work towards the goal of green, sustainable IVF and put India on the global green map.





Pearls of Wisdom



Dr. Sonia Malik Mentor, Green IVF Initiative Chief Clinical Mentor, Nova IVF & Fertility, INDIA



Green Revolution by White Coat, Leading from despair to Hope!

In the 1960's, a global clarion call of 'Green Revolution' was given to increase the agricultural yield in order to meet the increasing food demands of a rapidly rising population. This new mantra indeed proved successful worldwide and also drove India towards becoming a more powerful self-sufficient and economically strong nation. Recently, a new term has started coming up in the field of reproduction – Green IVF! Interestingly, both terms pertain to reproduction: one in the field of plants and the other in animals/humans... dealing with the seed and soil!

The Green Revolution involved the introduction of high-yielding variety (HYV) seeds, advanced irrigation techniques, and chemical fertilizers to boost agricultural productivity Similarly, Green IVF utilizes innovative techniques such as natural cycle IVF, which minimizes hormonal medication and focuses on using advanced imaging and selection technologies for embryo quality assessment. Both movements aim to increase production efficiency. The Green Revolution aimed to alleviate hunger and improve food security whereas Green IVF addresses infertility issues, providing effective sustainable health solutions for couples struggling to conceive.

The biggest challenge with the green revolution has been the change in the genetics and epigenetics profile due to use of insecticides, pesticides and genetically engineered varieties of seeds. Fortunately, in contrast, Green IVF emphasizes a more holistic, innovative and sustainable approach by reducing medication use and environmental impact associated with traditional IVF methods.

I congratulate the present team of IFS led by Col.(Dr) Talwar and ably supported by Dr Shweta Mittal for taking up this very topical subject as the theme of this year. I am sure with the well thought of program, and committed team members, we shall see a change in ART practice in the country very soon.

I wish IFS a thumping success





The IFS Green Brigade



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Green Teams

IFS Green Initiative proposes to touch every aspect of the IVF field so as to improve sustainability in routine ART practice. Accordingly, a task-force of 9 specialized 'Green Teams' has been formed to investigate and evaluate problem areas where green alternatives can be applied. Phase-wise implementation of novel ideas is envisaged, facilitating a dynamic shift to environmentally friendly techniques in the near future.

1.Understanding green sustainable IVF

- 2. Designing sustainable ART clinics
 - 3. Clinician perspective towards reducing carbon footprint
 - 4 .Low cost IVF to reduce environmental load
 - 5. Bio medical waste disposal and recycling of products
 - 6. Embryology initiatives to reduce environmental carbon load
 - 7. Cryobiology and greenhouse emissions
 - 8. Made in India initiative to reduce GHG emissions
- 9. Novel ideas and net zero by 2045



Team 4 Bulletin Pioneering Sustainable Fertility Solutions

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Low-Cost IVF to Reduce Environmental Load: A Sustainable Approach to Reproductive Health

In vitro fertilization (IVF) has become a beacon of hope for millions of couples struggling with infertility. However, as this advanced medical procedure grows in popularity, concerns around its financial inaccessibility and environmental impact are becoming more prominent. Today, as the world grapples with climate change and resource scarcity, there is a growing call for a shift toward low-cost and environmentally sustainable IVF practices.

This article explores the need, viability, and potential of low-cost IVF that not only reduces financial strain on patients but also minimizes the environmental load on healthcare systems and the planet.

IVF and Its Environmental Footprint

Traditional IVF is an energy-intensive process that requires:

- Controlled lab environments with strict temperature and humidity control
- Single-use plastics for sterility
- High-tech equipment for embryo culture, freezing, and transfer
- Frequent patient visits requiring travel
- Energy-intensive cryopreservation systems

These elements, while critical for successful treatment, create a large carbon footprint. From medical waste to electricity consumption, IVF clinics contribute more to environmental degradation than many realize.

Moreover, the rapid commercialization of fertility treatments often prioritizes success rates and profits over sustainability. As IVF becomes more common worldwide, especially in middle-income countries, this environmental burden is set to increase unless sustainable alternatives are adopted.



The Financial Burden of IVF

Alongside its environmental impact, IVF also comes with a heavy financial cost. In many countries, a single cycle of IVF can cost between \$5,000 to \$15,000, often excluding medications and additional services like genetic testing or cryopreservation. For most couples in developing nations, this cost is prohibitively high.

The financial strain often leads patients to abandon treatment or take on large debts, leading to emotional and economic distress. A low-cost IVF model is not just an economic necessity—it is a social responsibility.

Low-Cost IVF: A Dual Solution

A low-cost IVF model aims to address both affordability and sustainability, making reproductive healthcare more inclusive and environmentally conscious. The concept revolves around simplifying the IVF process without compromising safety and effectiveness.

Key Features of Low-Cost IVF:

1. Minimal Stimulation Protocols:

- Instead of high doses of expensive hormonal drugs, low-cost IVF uses minimal stimulation protocols.
- These use fewer medications, reducing both cost and the risk of ovarian hyperstimulation syndrome (OHSS).
- They also reduce medical waste and the carbon footprint from pharmaceutical manufacturing.

2. Simplified Laboratory Techniques:

- Use of simplified culture systems (like the Walking Egg project) allows fertilization and embryo development in low-tech devices without high-end incubators.
- These methods reduce the need for energy-intensive laboratory equipment.

3. Reusing Non-Critical Materials:

• Clinics can adopt sterilization and reuse protocols for certain non-critical components, reducing plastic waste without compromising hygiene or success rates.

4. Shared Services and Infrastructure:

- IVF centers can collaborate by sharing infrastructure like cryostorage and diagnostic labs.
- This reduces energy usage and spreads operational costs across multiple institutions.

5. Local Manufacturing of IVF Consumables:

- Importing IVF kits and medications significantly adds to the cost and carbon emissions.
- Encouraging local manufacturing can reduce both cost and environmental impact.

6. Teleconsultation and Digital Monitoring:

- Limiting the number of in-person visits through telemedicine reduces transportation emissions and streamlines processes.
- Digital tracking tools can help patients monitor hormone levels and symptoms remotely.

Case Studies and Global Efforts

1. The Walking Egg Foundation (Belgium and Africa):

The Walking Egg Project has pioneered simplified IVF techniques that can be offered at a tenth of the traditional cost. Their low-cost laboratory setup is now being piloted in multiple low-resource countries with promising results.

2. India's Public IVF Clinics:

India, with one of the highest infertility rates, is experimenting with government-subsidized IVF programs in public hospitals. These clinics emphasize generic medications, shared facilities, and simplified protocols.

3. Low-Tech IVF in Sub-Saharan Africa:

Clinics in Nigeria and Ghana have adopted low-tech incubation methods and locally-sourced materials to offer IVF at a fraction of the cost, while maintaining acceptable success rates.



Environmental Benefits of Low-Cost IVF

Implementing low-cost IVF doesn't just make treatment more accessible—it significantly reduces environmental load, including:

- Lower energy consumption due to simpler lab setups
- Reduced pharmaceutical waste
- Minimized plastic and chemical use
- Less travel-related emissions
- Smaller facility footprints

When designed mindfully, low-cost IVF protocols can reduce the carbon footprint per cycle by up to 50%.

Challenges to Implementation

Despite the benefits, low-cost sustainable IVF faces several hurdles:

- Perception of Quality: Patients often associate lower cost with lower success. Awareness campaigns and transparency in success rates can build trust.
- Regulatory Barriers: Many countries have strict licensing requirements for fertility centers, which may not yet accommodate low-tech methods.
- Training and Standardization: Medical professionals need to be trained in simplified techniques, and protocols must be standardized for safety.
- Initial Investment: Transitioning to sustainable IVF methods may require upfront investment, especially for new lab setups and training.



A Path Forward: Policy and Innovation

Governments, health agencies, and fertility organizations must work together to support sustainable IVF through:

1. Incentives for Green IVF Clinics:

• Tax breaks, grants, or certifications for clinics that adopt eco-friendly methods.

2. Inclusion in Public Health Schemes:

• Subsidizing low-cost IVF under universal health coverage.

3. Public-Private Partnerships:

• Encouraging collaboration between NGOs, hospitals, and biotech companies to innovate low-cost solutions.

4. Global Knowledge Sharing:

• Creating platforms for clinics across the world to share best practices, technology, and data on sustainable IVF.

Conclusion

As IVF continues to bring hope to countless families, it must evolve to become more accessible and environmentally responsible. Low-cost IVF is not a compromise—it's an intelligent, compassionate, and sustainable solution that addresses two of the most pressing global concerns: inequality in healthcare and environmental degradation.

With the right combination of technology, policy support, and awareness, low-cost IVF can become a cornerstone of reproductive health—benefiting not just individuals, but the planet at large.



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(CEP) Counsellor Empowerment Program



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NEP) Nurses Empowerment Program



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