Gender Equality and Green Development

-- Opportunities and Challenges Facing Women Scientists in the Developing World

A study report on “Empowering Women in Science and Technology”

by the research team

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Project Background

- This is a commissioned study by OWSD
- The project was funded by the Chinese Academy of Sciences (CAS)
- Project co-chairs: Prof. Xin Fang, Mr. Mohammed Hassan
- Contributions by Expert Panel and EB members are greatly acknowledged

Outline

1. **Significance of Women in Promoting Green Development**
2. **Great Challenges to Gender Equality in Green Development and S&T Fields**
3. **Initiatives and Actions Taken by the International Community**
4. **More Efforts Needed in Pushing for Further Changes**

1. Significance of Women in Promoting Green Development

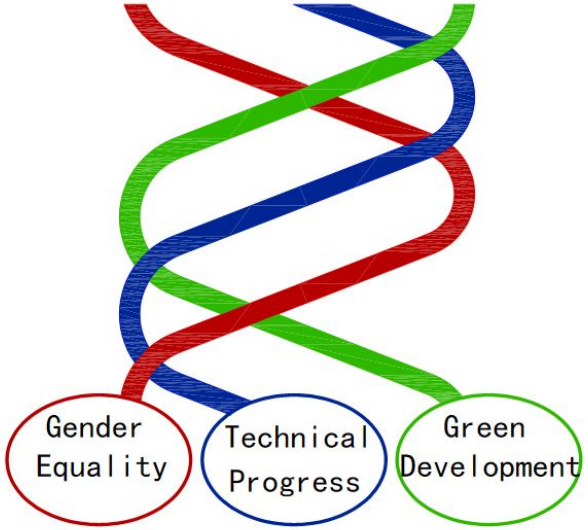
“If women were in more productive and decision-making roles, we could be moving faster and more assuredly towards sustainability in the economic, social and environmental sense.”

--Candice Stevens

Former OECD Sustainable Development Advisor

Triple Helix Model of Green Development, S&T Progress and Gender Equality

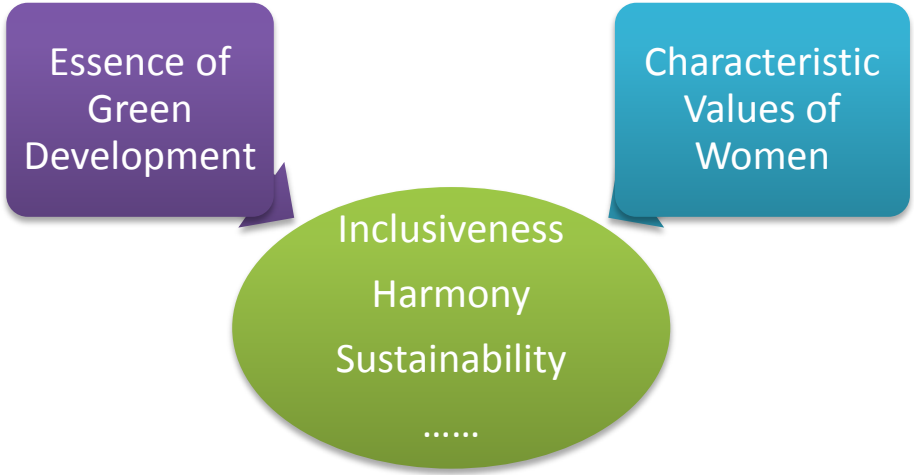
- Green development, S&T progress and gender equality are components of a “Triple Helix Model” that rely on and interact with each other, and provide direction for the future of human society.



Triple Helix Model of Green Development, S&T Progress and Gender Equality

Green Development Inherently Requires the Equal Participation of Women

- Green development inherently concerns the development of “human”.
- The concepts green development comprises, such as “inclusiveness”, “harmony”, and “sustainability” accord to the characteristic values that women hold.
- Green development can not be truly realized unless female perspectives and needs are equally reflected in emerging technologies.



The application of new technologies requires wide participation of women

- In contrast to the industrial era, green development requires distributive technologies, such as information, biotechnology and new energy.
- These technologies offer flexible employment opportunities and are subsequently expected to lead to a wider participation of women in technology development.

Distributed Renewable Energy Resources

As Policy-makers, Women Facilitate Broad Dissemination of Green Technologies

- Female consumers are absolutely not passive users of technical products; in fact, they influence the direction and speed of technical innovation.
- As the dominators of green consumption, women will lead trends in environmental and ecological friendliness.
- When attaining leadership and policy-making positions, women will naturally integrate such ecologically friendly concepts into the policy-making process and are more apt to support policies based on environmental values.

2. Great Challenges to Gender Equality in Green Development and S&T Fields

Knowledge of “green development” and the “green economy” remains at a basic level

- A survey conducted by the project team in Nigeria in 2013 shows that most people in politics, business, education and science are familiar with the term “green development”, but few fully understand its meaning.

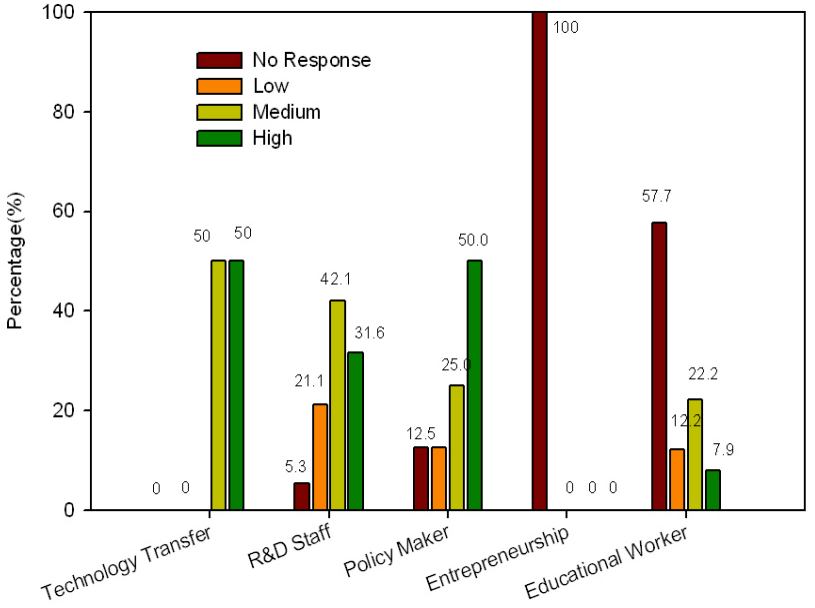


Fig. Recognition of the “Green Development” Concept
Source: Survey Data, Nigeria, 2013

Women Are Relatively Absent from Fields of Green Technology

- Despite the fact that the achievement of green development relies on technology innovation, especially in green S&T industries, women continue to be absent from green S&T fields in most developing countries.
- Data collected in Nigeria in 2013 show that the percentage of women in politics, education, R&D, technology transfer and business – all highly involved in emerging technologies – is only 1.5%, 15.6%, 0.8%, 0.8%, and 16.3% respectively

Serious Gender Imbalance in Engineering and Technology Research

- Female researchers in the field of engineering and technology make up only 15% to 40% in some European countries, less than 25% in Asian developing countries, and less than 20% in Latin America
- In the developing world, serious gender imbalance has been observed in information, energy, environmental protection and biological sciences, which may be the pioneer sciences in future green industries.

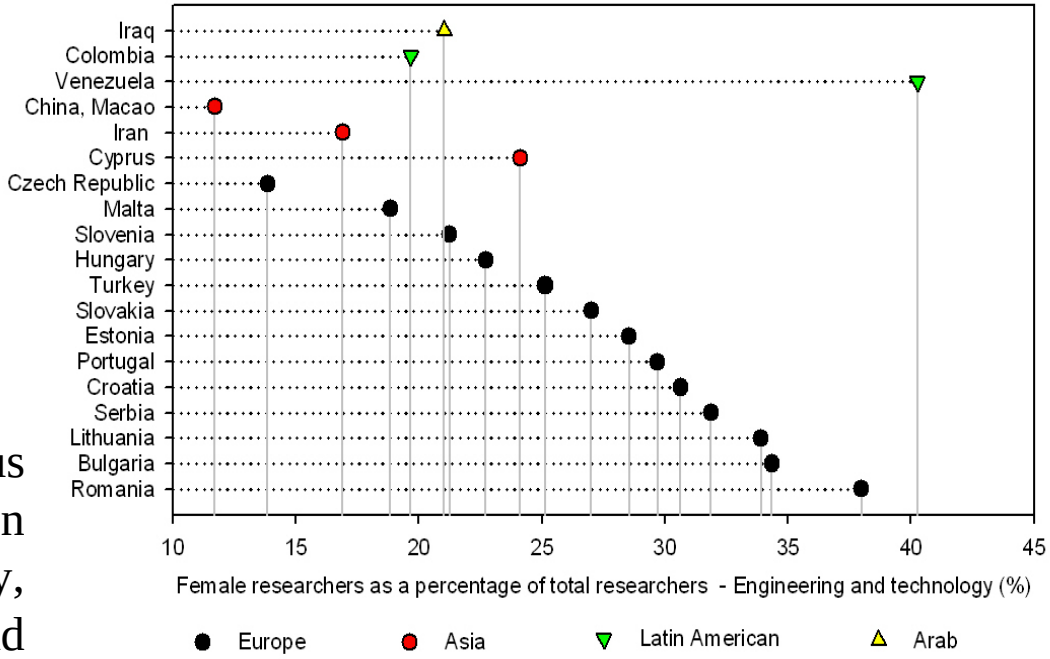


Fig. Percentages of female researchers in engineering and technology of some developing countries, 2009
Source: UNESCO Institute for Statistics

Women are relatively absent from the decision-making and leadership positions

- In S&T, men continue to occupy the majority of management and leadership positions in technology companies and regulatory/policy making institutions, especially in developing countries

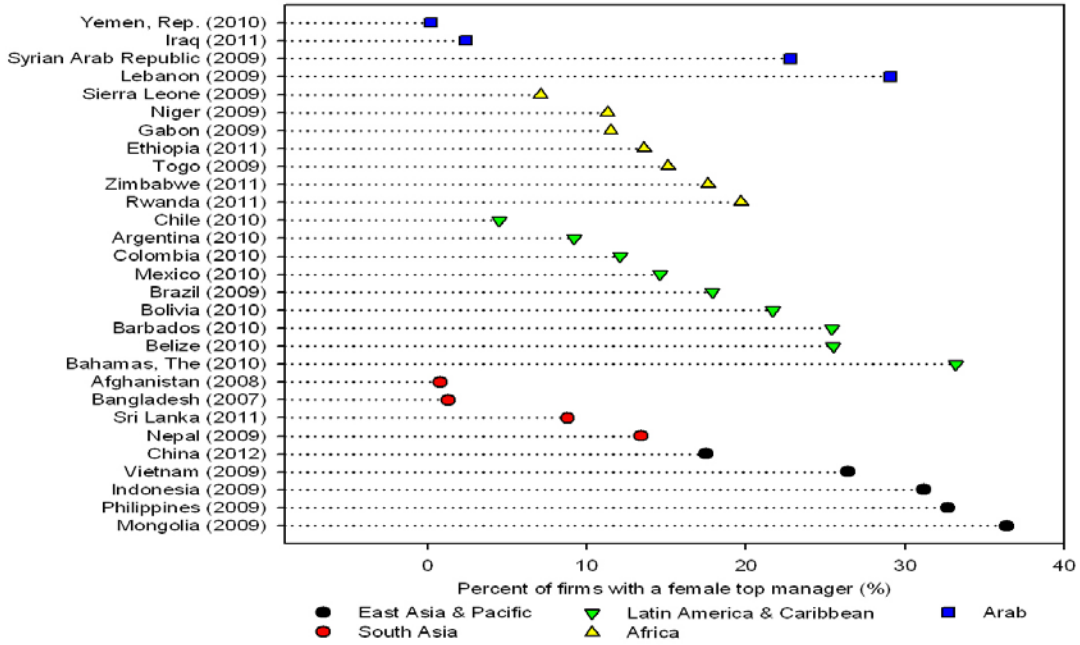


Fig. Percentage of firms with a female top manager (%)

Source: World Bank Enterprise Surveys

Traditional Barriers

- According to our research, most of the problems faced by women in the green development and emerging technology fields have long existed.
- Obstacles encountered by women in the green economy are similar to those they encountered in the brown economy (GGWG & DCED, 2012):
  - Gender differences in
    - time use;
    - education
    - skills training,
    - participation in labor markets,
    - access to production resources, which mutually influence each other
  - Traditional perception of gender role.

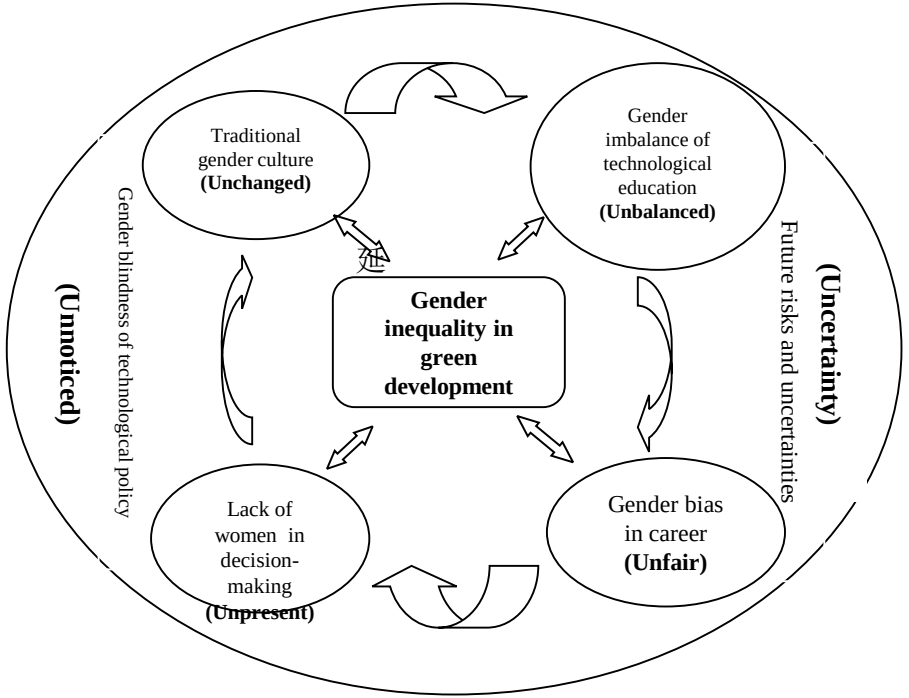
Uncertainties Arising From New Technology Development

- Stem cell technology: closely related to human health, reproduction, and social ethics
- Genetically modified food safety
- Nanotechnology's effects on the environment and human health

- Globalization and new technology development have engendered uncertainties in the relationships among environment, women and gender, posing new challenges to gender equality in green development and S&T.

Co-existence of Old Obstacles and New Challenges Form a “Strengthening Circular Loop”

- Co-existence of Old Obstacles and New Challenges：Traditional Cultural Conceptions of Gender, Gender Inequality in Education, Barriers in Professional Participation, and Gender Blindness in S&T Policy-making, among others.
- These inhibiting factors reinforce one another and consequently take on a synergistic effect, causing women to face even greater challenges in the new era.



Special Challenges to Developing Countries

- Gender issues in developing countries are significantly different from those in developed countries
- Prior to the real improvement of female participation in S&T, especially the increased involvement of women in green technology under the green development model, major efforts need to be targeted to changing development models and understanding of gender equality, or even to substantial reform of political and economic systems.
- This is undoubtedly an enormous challenge.

3. Initiatives and Actions Taken by the International Community

International Organization's Attention to "Women and Science"

Many international organizations paid attention to the issue of "Women and Science" :

- United Nations
  - UNESCO
  - World Bank
  - UNIDO
  - IFAD
- EU
- WCED
- OECD
- TWAS
- ……

Actions and Initiatives by International Organizations and National Governments

- The international focus is mainly on two aspects:

1) How to guarantee the equal representation of men and women in S&T fields as well as in innovation systems;

2) How to help women participate more effectively in green economy development.

- **Mainstream gender perspectives in respective national policies and programs**
- **Establish a Gender-equality Cultural Model**
- **Remove Gender Barriers in S&T Education**
- **Initiate Green Technology Transfer and Training Programs**
- **Set up Special Funds**
- **Establish Role Models**
- **Advance Women's Participation in Decision-making**
- ……

OWSD Has Done …

- As the largest international body to unit eminent women scientists, OWSD puts substantial efforts in promoting women's participation in S&T development:
  - Postgraduate Training Fellowships (OWSD Fellowship): SIDA
  - OWSD Awards: Elsevier Foundation
  - GenderInSITE Campaign
  - OWSD Networking

4. More Efforts Needed in Pushing for Further Changes

International Community in General

Promoting Women's Participation in Green Development by Mainstreaming of Gender Consciousness and Policy

- ❖ Adding a dimension of gender to STI policies
- ❖ Applying a gender lens to policy evaluation
- ❖ Improving women's participation in decision making

International Community in General

Improving the Efficiency of Women's Participation in Green Development by Furthering Institutional Reform

❖ **Shift from "individual" support to "institutional" support**

focus on giving support to academic institutions rather than individuals for creating a more suitable and inclusive work environment for women in science and technology.

❖ **Shift from "individual project" support to "regime establishment" support**

promotion of gender equality itself is a systematic project that needs to take into account the comprehensiveness and effectiveness of the support system.

International Community in General

Promoting Women's Participation in Green Development by Developing Their Capacity

- ❖ Developing women's leadership
- ❖ Providing green S&T education
- ❖ Providing special skills training regarding green S&T

International Community in General

Strengthening Interaction between Developed and Developing Countries for Common Development

- ❖ Promote green technology transfer.
- ❖ Technology education.
- ❖ International R&D cooperation.

Action Priorities of OWSD in the Future

Setting up a “Women in STI” panel

- Establishing role models for girls by documenting successful experiences of OWSD award winners over the years;
- Initiating studies on “gender and S&T”, such as special studies on the best practices adopted by countries to promote women’s participation in green S&T, and long-term follow-up studies on “green development and women”;
- Taking advantage of the power of media to spread positive gender awareness through TV, network, magazine and similar channels and highlighting the outstanding contributions and leading role of women scientists and technologists in green development.

Action Priorities of OWSD in the Future

Initiating the "next generation in green development" action plan

- Providing stronger support to girls in developing countries with respect to S&T education
- Focusing on educating children and teenage in developing countries on environmental and ecological friendly technologies
- Raising awareness of the next generation about environmental protection.

Action Priorities of OWSD in the Future

Enhancing networking with women's organizations in different countries

- Deepening cooperation with governments of the world
- Encouraging women scientists and technologists of developing countries to participate in exchange and cooperation on green technology in the fields of IT, new energy, biotechnology and environmental protection through the establishment of "women and green development" funds with different governments.

Thanks for your attention !