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'94

A Pre-NGOs Conference Before the UN 4th World Conference on Women'95

Preparatory International Symposium for 1995 NGOs Forum on Women, Science and Technology

September 24-25, 1994
Science Hall, Beijing Friendship Hotel, Beijing, China

PROGRAM

EQUALITY DEVELOPMENT PEACE
EDUCATION EMPLOYMENT HEALTH

Sponsor: China Women's Association for Science and Technology (CWAST)
Co-Sponsored by: All-China Women's Federation (ACWF)
China Association for Science and Technology (CAST)
China NGOs Forum Organizing Committee

China Women's Association for Science and Technology (CWAST)

Introduction

China Women's Association for Science and Technology (CWAST) is a non-profit and non-governmental organization composed of women in science and technology from different disciplines and fields, including the government, industrial and commercial enterprises, universities and colleges, research institutes including 161 national societies and associations in basic sciences, engineering, agriculture, and medicine. CWAST aims to promote Chinese women's full participation in the coordinative political, economic, scientific and technological, and social development, to achieve the full realization of the advancement of women as equal partners with men, to establish cooperative relations with international scientific and technological organziations for women and organize professional exchange programs between Chinese women and their foreign counterparts.

Objectives

- To safeguard the legal rights and eliminate all forms of discrimination against women;
- To enhance women's roles in policy decision-making processes at all stages;
- To promote the reconceptualization of science and technology "by, with and for women";
- To strengthen the collaboration between women and men and women in science and technology and grassroots women;
- To sponsor face-to-face scientific, technological, educational and cultural exchanges throughout the world through international conferences, symposia, workshops, training courses, mutual visits, etc.;
- To set up various kinds of training and education programs for advancement of women;
- To build close linkages between women in formal and informal science and technology;
- To render suggestions to governmental & non-governmental organizations for improving science and technology policy, research and application;
- To nominate women candidates as representatives and participants in the work of international science and technology organizations;
- To raise funds for exchanges and educations of women;

Membership

Individual membership & provincial and municipal membership

Four Committees

- Committee for National & International Professional Exchanges
  Chairperson: Hu Qiheng
- Committee for Advancement of Women's Educations
  Chairperson: Liu Shu
- Committee for Women's Health
  Chairpersons: Wang Fenglan & Ge Qinsheng
- Committee for Environment and Development
  Chairpersons: Den Nan & Tang Xiaoyan

Nine Working Groups on Gender

- Working Group on Industry & Micro-enterprises
  Chair, Cao Qixiao
- Working Group on Health
  Chair, Wang Fenglan & Xiang Xiaoying
- Working Group on Energy
  Chair, Lu Weide & Deng Keyun
- Working Group on Environment
  Chair, Tang Xiaoyan & Qian Yi
- Working Group on Employment
  Chair, Feng Yaoping & Guan Jinzhu
- Working Group on Food Security
  Chair, Meng Suhe
- Working Group on Indigenous Knowledge
  Chair, He Xinyun & Peng Shulian
- Working Group on Education
  Chair, Zang Jinping & Zhou Qingjun
- Working Group on Information
  Chair, Luo Ruming & Zhang Zhili

Senior Advisors (in alphabetical order)

Chen Minzhang, Minister of Public Health
Li Xiangyi, Director of Department of Popularization Science, CAST
Niu Deming, Honorary Director of Beijing Municipal Institute of Development Strategy
Wu Heng, President of China Invention Society
Zhou Guangzhao, President of Chinese Academy of Sciences
Zhu Chuanyi, Professor of Chinese Academy of Social Sciences

35 China NGOs Forums for The UN 4th World Conference on Women
Beijing, China, August 30-September 8, 1995

*Women & Environment
*Women & Political Empowment
*Women in Science & Technology
*Women & Industrial Development
*Women in Rural Areas
*Women & Health
*Women & Peace
*Women & Education
*Women & Family Education
*Women & Family
*Women & Employment
*Labor Protection of Women
*Women & Mass Media
*Women of Minority Nationalities
*Women & Human Rights
*Population Control & Family Planning
*Women & Loans
*Violence Against Women
*Women & Chinese Culture
*Women & Traditional Chinese Medicine
*Women's Participation in Enterprise Management
*Young Women and Social Development
*Elderly Women & Their Life
*Women in Disability
*Women & Sports
*Women Studies in China
*Women and Adult Education
*Chinese Women's Role in the Family
*Women and Social Work
*Women and Religion
*Women and Arts
*Women and Movie Arts
*Women Groups and Social Aids
*Women & Red Cross Aids
*Development of Human Resources of Chinese Women

Welcome to Beijing

On behalf of China Women's Association for Science and Technology, a non-profit and non-governmental organization, we are pleased to extend our warm welcome to you to participate in the International Preparatory Symposium for 1995 NGOs Forum on Women, Science and Technology to be held in Beijing September 24-25, 1994, a pre-activity before the UN 4th World Conference on Women and NGO Forum.

Women of many nations have come to the realization that human lives are enriched by the advancement of science and technology, education and women's social status. Our organization is dedicated to these efforts. China, one of the cradles of human civilization, takes great pride in her 5,000-year cultural traditions and women's contributions to science and technology.

We are committed to the concept of face-to-face communication between Chinese women scientists and their counterparts from all nations of the world. We believe this one-to-one interaction is beneficial in many ways. From September 4 to 15, 1995, the United Nations will convene its 4th World Conference on Women in Beijing, China. At the same time, from August 30 to September 8, a Non-Governmental Organizations (NGOs) Forum will be organized. These activities will provide you an opportunity to share and exchange information and foster understanding and friendship among women.

It is our hope that you will join in our commitment to promoting the advancement of women in science and technology and education. We look forward to your participation in our future exchange programs including 1995 Beijing Conference and to your contribution toward the success of the implementation of the Nairobi Forward-Looking Strategies.

Xie Xi-de
President
China Women's Association for
Science and Technology

Wu Gan-mei
Secretary General
China Women's Association for
Science and Technology

Welcome Address
by Professor Xie Xide, President of China Women's Association for Science and Techology

Dear friends, distinguished overseas colleagues:

On behalf of the China Women's Association for Science and Technology, I would like to welcome all the participants to the Preparatory Symposium for 1995 NGO Forum on Women, Science and Technology. The Symposium is held under the support of China NGO Forum Organizing Committee and All-China Women's Federation. The major theme of the Symposium listed in the announcement is "New Vision for a More Holistic and People-Centered Approach to Science and Technology for the 21st Century".

The 21st Century will soon go into the history books and it will be remembered with a kind of mixed feeling, since this is a century that science and technology have made tremendous progresses; however, one has also witnessed two World Wars and numerous civil wars and local confrontations. Looking forward towards the next century, we are filled with the feeling of great anticipation. More new things that we have never dreamed of before might emerge. It is our unanimous wish that people will live in a better, more prosperous and more unbiased and peaceful world. Therefore, it is quite timely for us to gather here to describe our common vision for the development of science and technology in the 21st century from the women's point of view. In order to have a more holistic and people-centered approach to science and technology, women's participation is most important. Various barriers which might hinder the implementation of our vision have to be removed. It is only after the majority of the world population could be free from the threat of hunger and poverty; it is only after the basic necessities of human beings could be met and the value of women could be fully honored and repected, then and only then our vison can have a chance to turn into a reality and it is also then science and technology could have a sustainable and healthy way of development.

Looking through the past decade, it is quite evident that although progresses have been made since the 1985 Nairobi Forward-Looking Strategies were put forward; however, the goals for equality, development and peace are far from being implemented. We feel very sorry today that many women in the world are still suffereing from hunger, poverty, unequal treatment and various forms of discrimination. In many places, women do not have equal rights in and equal access to participation of various professional undertakings. According to the report on "The Situation of the Chinese Women", a white paper released not long ago, we are glad that in China women have enjoyed equal rights and equal opportunities for education and employment since 1949; however, we still have a long way to go before women could play a comparable role with their male counterparts in the fields of science and technology. This Symposium will provide an excellent opportunity for Chinese participants to share our experiences with and learn from our overseas friends.

Since time for the Symposium is very short and there are numerous issues of common interest to be discusssed; therefore, it is my sincere hope that liverly discussion can be focussed on some of the major issues such as how to help those regions which are suffered from poverty and environmental pollution, how to raise the edcation level and illuminate the illiteracy of women, how to carry out the health protection as well as how to develop the various forms of job oriented skills for women. Together with our overseas friends we would like to identify and understand the barriers that hinder women from moving forward faster.

Although the time for our gathering is short, I am sure that the friendship thus established will last for the days to come. Finally, I sincerely hope that the Symposium will be a successful one and your stay in Beijing will be both fruitful and enjoyable.

Symposium Program

Wednesday, September 21, 1994

12:00-13:00 Working lunch between Ms. Wu Ganmei and some foreign delegates attending the International Conference on the Development and Role of Women in Technology and the Preparatory Symposium for 1995 NGOs Forum on Women, Science and Technology
Ju He Yuan, Friendship Palace

Friday, September 23, 1994

13:30-16:00 Registration
Room 102, 1st Floor of Science Hall, Friendship Hotel

14:00-17:00 Discussion with the National Business and Professional Women's Association of USA and the American Association of University Women
Room 102, 1st Floor of Science Hall, Friendship Hotel

Saturday, September 24, 1994

09:50-10:50 Registration
In the lobby of Science Hall, Friendship Hotel

09:00-12:00A. Introduction of International Federation of Business and Professional Women (IFBPW) and Its Preparations for NGO Forum'95

B. Introduction of individual members of Beijing Club of IFBPW

C. Exchanges of experiences
The Report Hall, 1st Floor of Science Hall, Friendship Hotel

Key Speakers

Yunsook Hung, Vice President of IFBPW

Hu Qiheng, Vice President of Chinese Academy of Sciences

Wu Ganmei, Secretary General of China Women' Association for Science and Technology (CWAST)

Pat Harrison, Regional Coordinator Asia Pacific Region IFBPW

Linda Clark, National Business and Professional Women's Association of USA

Yang Xiufang, President of China Finance Trust and Investment Corporation, ***Finance and Environment***

Li Jingzhi, Vice President of Chinese Management College of Women Cadres

Tao Chunfang, Vice President of Chinese Management College of Women Cadres

Song Jing, General Manager of China National Non-Metallic Minerals Industrial Import & Export Corporation, ***Chinese Women's Roles in and Contributions to Metallic Industry and Trade***

Zheng Bijun, Director of Women Studies Center, Beijing University, ***Problems and Strategies to Girls' Education in Poor Areas in West China***

Guan Jinzbu, Director of Science Consultancy Department, China Association for Rural Enterprises

Guo Weiqin, Director of Beijing Dongzhimeng Hospital, ***Women Scienctists and Development of Traditional Chinese Medicine***

Fang Jing, English Teacher of Beijing Jingshan School

Zang Jinping, Lecturer of Open University, ***Lifelong Education in Open University***

Zhou Weiwen, Research Fellow of Chinese Academy of Social Sciences Hebei Chapter ***Difficulties and Development in Dry Areas***

Tea Break 10:15-10:30

12:15-13:15	Working Lunch Wan Shun Ju, Friendship Palace
13:30-17:00	Plenary Session Presided over by Ms. Wu Ganmei, Secretary General of CWAST Report Hall, 1st Floor of Science Hall, Friendship Hotel
13:30-13:35	Welcome Address by Prof. Xie Xide, President of CWAST
	Key Speakers
13:35-13:45	Lydia Makhubu, President; or Patience Dennis, Vice President of Third World Organization for Women in Science (TWOWS)
13:45-13:55	Hu Qiheng, Vice President of Chinese Academy of Sciences
13:55-14:10	Josephine Beoku-Betts, Program Coordinator of Once & Future Action Network
14:10-14:15	Lu Weide, Director of Beijing Institute of Solar Energy, *The Role of Chinese Women in The Development of New & Renewable Resources of Energy*
14:15-14:20	Ilse Marks, Technology Officer, United Nations Development Fund for Women (UNIFEM)
14:20-14:25	Tang Xiaoyan, Vice President of Chinese Society for Environmental Science
14:25-14:30	Julia Marton-Lefevre, Executive Director of International Council of Scientific Union (ICSU)
14:30-14:35	Cao Qixiao, Director of China Association for Women in Chemical Industry, *Women's Involvement in Industrial Development in China*
14:35-14:40	Sharon Schuster, American Association of University Women
14:40-14:45	Wang Xiaoqing, on behalf of Liu Siru, Vice President of CWAST, *Women in Science and Technology*
14:45-14:50	Malee Suwana-adth, President of Approtech Asia, ITDP/TS/TPU/Biotechnology & Genetic Engineering, UNIDO
14:50-14:55	Wang Fenglan, Chairperson of Women's Health Committee, *Women & Health*
14:55-15:00	Yunsook Hung, Vice President of International Federation of Business and Professional Women (IFBPW)
15:00-15:15	Tea
15:15-15:20	Ning Ruxin, President of Beijing Institute of Technology, *Women & Education*
15:20-15:25	Lilia Ramos, Executive Officer of Approtech Asia
15:25-15:30	Luo Rumin, Director of China Evaluation Center of High-Tech Industry, *The Roles of Women in Developing Information Industry*
15:30-15:35	Aparna Basu, Secretary General of All India Women's Conference
15:35-15:40	Sophie Leung Lau Yau Fun, a well-known enterpreneur, Hong Kong, *Being A Women Enterpreneur--My Experiences*
15:40-15:45	Muriel Magenta, Project Director of the World's Women On-Line, Institute for Studies in the Arts, Arizona State University, *The World's Women On-Line--Electronic Art Networking Project*
15:45-15:50	Zhu Huiqun, Chinese Society for Environmental Science, *The Importance of Environmental Protection of Women in Industrial and Mining Enterprises*
15:50-15:55	Renate Bloem, Member of the Geneva NGO Sub-Committee on the Status of Women
15:55-16:00	Alison Vincent, University of Sydney, *The History & Philosophy of Women in Science and Technology*
16:00-16:05	Eboumbou Patience, Cameroun Association of Women Engineers
16:05-16:10	Tina Redshow, Voluntary Service Overseas

16:10-16:15 Minako Yasu, Japanese Association for Women in Science
16:15-16:30 Huang Qizao, Vice President of All-China Women's Federation,
Update Information about the Preparations for China NGOs Forum and 4th World Conference on Women

18:30-20:00 Welcome Reception and Evening Party hosted by All-China Women's Federation
Ju He Yuan, Friendship Palace

Sunday, September 25, 1994

09:00-10:00 Plenary Session
Room 213, 2nd Floor of Science Hall, Friendship Hotel

Speakers

09:00-09:05 Teresa Wilson, Vice President International Programs, Pennsylvania Peace Links, *The Manifold Impacts of Militarism and The Nuclear Arms Race on Women - In Terms of Health, Employment, Education, Environment*

09:05-09:10 Tang Kebi, Director of Department of Women Employees of All-China Trade Union, *The Role of Trade Union's Committee on Women Employees in Their Labor Protection*

09:10-09:15 Rea Labuschague, Expert in Gerontology

09:15-09:20 Zhang Shiqiu, Research Fellow of Chinese Society for Environmental Science, *Building Up Women's Capabilites in Environmental Protection*

09:20-09:25 Annelise Jarvis Hansen, Cultural Information and Coordination

09:25-09:30 Chen Qi, Professor of Beijing Normal University, *Policy and Proposal--the Retirement Age of Female Teachers*

09:30-09:35 Anila Dholakia, Grass

09:35-09:40 Yang Jinwei, Chinese Society for Environmental Science, *Women in Remote and Poor Areas Need More Aids*

09:40-09:45 R. Burma, Mongolian Movement "Women for Social Progress"

09:45-09:50 Feng Yaoping, Council Member of China Foundation of Post-PhD., *We Need More Women Experts*

09:50-09:55 Dang Yi, Associate Professor of Beijing University of Traditional Chinese Medicine, *Food Therapy in Traditional Chinese Medicine and Cosmetology*

09:55-10:10 Tea

10:10-12:00 Workshop on Women & Health, Food Security and Traditional Chinese Medicine
Chair, Wang Fenglan
Room 206, 2nd Floor of Science Hall, Friendship Hotel

Workshop on Women & Employment, Education, Information & Culture
Chair, Zhang Zhilin & Zang Jinping
Room 208, 2nd Floor of Science Hall, Friendship Hotel

Workshop on Environment, Energy and Industrial Development
Chair, Lu Weide & Deng Keyun
Room 213, 2nd Floor of Science Hall, Friendship Hotel

12:15-13:45 A Reception Dinner hosted by China Finance Trust and Investment Corporation
Ju He Yuan, Friendship Palace

14:00-17:00 Visit to the Venue of the NGO Forum of the UN 4th World Conference on Women

CHINESE INDIVIDUAL MEMBERS OF INTERNATIONAL FEDERATION OF BUSINESS AND PROFESSIONAL WOMEN

(in alphabetical order)

Bai Ling, Human Settlement CommitteeCao Qixiao, China Association for Women in Industry
Chen Qi, Department of Psychology, Beijing Normal University
Dang Yi, Beijing University of Chinese Medicine
Deng Keyun, China Society of Rural Energy
Dong Guilan, Department of High-Tech, the State Commission on Science and Technology
Duan Jingru, China Personnel Society
Fang Jin, Beijing Jingshan School
Feng Yaoping, Deputy Director of Department of Expert Affairs, the Ministry of Personnel
Gao Lin, Institute of Ecological Environment, Chinese Academy of Sciences
Ge Qinsheng, Pekin Union Medical College
Guan Jinzhu, Department of Scientific Consultancy, China Association for Township Enterprises
Guo Weiqin, Beijing Dongzhimeng Hospital
He Xinyun, Beijing Dongzhimeng Hospital
Hu Jian, Department of Economics, Beijing University
Hu Daofeng, Beijing Research Institute of Agricultural Sciences
Meng Suhe, Deputy Secretary General of China Food Association
Ning Ruxin, Beijing Institute of Technology
Li Jiaxi,Chinese Academy of Geological Science
Li Xiuqing, Department of International Cooperation, the State Commission on Science and Technology
Li Xiaolin, Chinese People's Association for Friendship with Foreign Countries
Lin Mingmei, Beijing Insitute of Pharmacology
Lin Shouqing, Peking Union Medical College Hospital
Liu Jingyi, Ecological Environment Research Center, Chinese Academy of Sciences
Liu Yumei, Institute of Flowers, Chinese Academy of Agricultural Sciences
Lu Weide, Beijing Institute of Solar Energy
Luo Ruming, China Evaluation Center of High-Tech Enterprises Develpment
Peng Shulian, Beijing Dongzhimeng Hospital
Shi Shuyun, Chinese Organizing Committee of UNESCO
Tang Kebi, Department of Women Employees, All-China Trade Union
Wang Jiaxiang, Beijing University of Foreign Studies
Wang Wenhua, Ecological Environment Research Center, Chinese Academy of Sciences
Wu Changzhen, Department of Law, China Association for Women Lawyers'
Wu Yiyong, Department of Gynecology and Obstetrics
Xiang Xiaoying, Beijing Institute of Women's Healthcare
Yang Jingwei, China Society of Environmental Science
Yang Tuan, China Foundation of Population Welfare
You Chuan, Beijing Institute of Women's Healthcare
Yu Hanhua, Rsearch Center, the State Commission on Science and Technology
Zhang Shiqiu, The Environmental Science Center, Beijing University
Zhang Xinqin, Department of International Cooperation, the State Commisssion on Educaion
Zhang Yihua, Department of International Cooperation, the State Commisssion on Educaion
Zhang Zhilin, Department of Technology Conditions, Chinese Academy of Sciences
Zhao Xiuwen, Departemtn of Law, People's University
Zheng Bijun, Research Center of Women Studies, Beijing University
Zhu Huiqun, China Society of Environmental Sciences

China Science & Technology

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Since time for the Symposium is very short and there are numerous issues of common interest to be discussed, therefore it is my sincere hope that lively discussion can be focussed on some of the major issues such as how to help those regions which are suffered from poverty and environmental pollution, how to raise the education level and illiminate the illiteracy of women, how to carry out the health protection as well as how to develop the various forms of job oriented skills for women. Together with our overseas friends we would like to identify and understand the barriers that hinder women from moving forward faster.

Although the time for our gathering is short, I am sure that the friendship thus established will last for the days to come. Finally, I sincerely hope that the Symposium will be a successful one and your stay in Beijing will be both fruitful and enjoyable.

SPEECH AT PREPARATORY SEMINAR

ON WOMEN AND SCLENCE & TECHNOLOGY FOR'95 NGO FORUM

BY MADAM HUANG QIZAO,
VICE PRESIDENT AND FIRST SECETARY OF THE SECRETARIAT
OF THE ALL—CHINA WOMEN'S FEDERATION
AND VICE CHAIRPERSON OF THE CHINA ORGANIZING COMMITTEE
FOR THE FORTH WORLD CONFERENCE ON WOMEN

Dear friends and fellow sisters,

It is a great pleasure for me to meet you in Beijing. It would be a very good opportunity for all of us professional women share and exchange our information idea's, and experiences on the role of women in development under the theme of equality, development and peace and in line with the Nairobi Forward—Looking Strtegies.

The two days preparatory symposium on women and science & technology for '95 NGO Forum sponsored by China Women Association for Science and Technology is very important pre—conference because there are only 300 days left before '95 NGO Forun.

Since the United Nations decided to convene the Fourth World Conference on Women in Beijing, The Chinese Government and Chinese NGOs have attached great importance to the preparations for the Conference. Premier Li Peng, during the 1st nd 2nd plenary sessions of the 8th National People's Congress held in 1993 and 1994 respectively,twice stressed the importance of the preparations of Fouth Conference on Women. On August 28, 1992, the Chinese Government set up the China Organizing Committee for the Fourth World Conference on Womeh,which is headed by Mms.

According to the resolution of the United Nations, Chinese Government has also compiled, with the participation of Chinese NGOs and some experts, the national report on China's implementation of the Nairobi Forward—Looking Strategies, which has been submitted to the ESCAP and the UN Secretariat of the Fourth World Conference on Women in March this year. In June, the Public Information Office of the State Council delivered and pudlished a white paper on the Situation of Chinese Women.

Mme. Mongella, the Secreaary—General of the Beijing Conference, highly appraised the efforts made by Chinese Government and Chinese people after her two plan missions to China in june last yeat and this year. And not long ago, Mr. Ghali, the Secretary— General of the United Nations, paid a visit to China and signed the agreement with the Chinese Government.

Now through the media, the information of the Conference has been sent to all corners of China among women in both city and rural areas particularly among the grassroots. The

People's Daily, the most influential and widely circulated newspaper in China has carried more than 80 articles about the Conference, while the CCTV, which has the largest audience has had a series of programmes to form information packages on a range of issues.

From this September to the next september, over 100 publication series entitled Chinese Women's Achievements will be aired on CCTV at the prime time, systematically presenting Chinese women's roles and achievements in political economics and social development. From Ooctober l this year, a special program named"half the Sky"will be broadcast for about 45 minutes every day on the hot women issues.

The Chinese NGOs have also taken active part in the preparation for the '95 NGO Forum. Composed of the leading persons from 23 major NGOs in China. The all—China Women's Federation as the largest non—governmental women's organization in China, is entrusted by the Chinese Organizing Committee to undertake the concrete preparaton for the NGO Forum.

'95 NGO Forum location will be in Beijing Workers' Sports Service Center, which covers an area of 40 hectares with a total floor space of 130,000 suare meters. The center has a Stadium with 70,000 seating capacity where the opening ceremony and arts and crafts demonstration will be held. The gymnasiu hall with 13,00 seating capacity will be used to show films and hold large scale regional meetings or to organize cultural performances. There are another 60 large or small meeting rooms will be used for sominars and workshops. At the request of some NGOs and according to the experience of the '85 Forum, we will set up about 30 tents in the center. There will be also show exhibitions on such subjects as "The Past and Present of Chinese Women", "The Chinese Women and Progress in Science and Technology", "The Dresses and Ornaments of the Women of 56 Ethnic Groups in China", "Books for Chinese Women", "Paintings and Works of Calligraphy by Chinese Women", "Women's Handicrafts", and "Stamps on Wmen", Shopping areas and food streets will be opened within the center for the convienience of the participants.

The Chinese NGOs are earnestly applying to hold over 30 seminars covering such topics as Women and Education, employment, Health, Political Participation, Participation in the Progress of Science and Technology.

Dear sisters and friends there are only 300 days left before the '95 Conference. We shall try our best in perfecting our preparation for the Conference to act as a qualified host to greet friends from all parts of the world. Chinese people, especially the Chinese Women, are warmheartedly awaiting the coming of 1995 and sincerely hope to see every one of you in Beijing in the golden autumn next year.

Thank you.

A paper on the history and phllosophy of women in science and technology

Alison R. Vincent

September 1994

(Paper written for the Preparatory Symposium for 1995 NGO Forum on Women, Science and Technology, 24-25 September 1994, Beijing, China.)

Introduction

This paper is in four parts:

1. My position: A woman-centred view of science and technology
2. The emergence of that position: Why are science and technology are not woman-centred
3. Two approaches to take if this position is adopted: Attending differently
4. Posing questions: Asking new questions.

A woman-centred view of science and technology: My posltion

First, it is important to recognise I am a westerner. My position is that of a westerner. While I am open to new understandings from my sisters in other parts of the world, I come here with a particular background, history. One aspect of this background is some study in the area of critical social theory (e.g., Fay, ------; Habermas, ------).

Second, I am assuming science and technology are male centred, male dominated fields of study and endeavours. I hope there are challenges to that. In part that is what I am trying to do, to question the male-female dichotomy, categorisations, of intellectual activity. In the making of new categories, I hope to show, it is possible to transcend gender without making it irrelevant in science and technology.

Third, the issue for me is not in creating new labels for issues and aspects of issues, but in coming to understand where we are, how we might understand things differently and what we might do to make things different where that is agreed as an important thing to do.

Fourth, the topic is too great to achieve anything beyond indicating a position and something of where and how that position emerged and how women in science and technology might proceed if they adopted such a view of themselves and what they do. It is now time to state my position: A woman-centred view of science and technology must differ in its philosophical orientation, its approach, from what already exists. One aspect of this position is that a view of science and technology that relies only on participation of women in existing paradigms of science and technology is in essence no different from the patriarchal gaze or approach which already exists.

Repositioning science and technology with a gender sensitivity

A brief excursion into historical and philosophical texts on science and technology pointed to a number of issues that let me to question the gendered positioning of science and technology. A simple grid/matrix helps illustrate the framework in which I am working.

History and philosophy of women in science and technology

	SCIENCE	TECHNOLOGY
HISTORY	Almost silent Promotion of science in the education of girls	The first stone Technology and progress Cyberspace
PHILOSOPHY	Silences Beginning voices	Ecofeminism/deep ecology

History

History is important to a study of women in science and technology for at least two reasons: One, we are historical beings; and two, very generally speaking the recorded history is one of silences of the interests and contributions of women.

We are historical beings, we change ourselves. In light of changes in society, and in the ways we understand ourselves, humans can contribute to the social forms they inhabit. Part of these social forms, while some may argue a minute part, is an attitude to science and technology.

Recorded history of women in science and technology

he literature is almost silent on the presence and activities of women. At least until quite recently this was so. Interesting it is women writers who have been as silent as have the males.

In 1974, when Margaret Rossiter reviewed a biography by Robert Clark of Ellen Henrietta (Swallow) Richards (1842-1911) and claimed she was the founder of ecology, Rossiter remarked to the effect that it was a somewhat romantic notion, despite that Clark had shown Richards to be a remarkable woman for her work in sanitary science, chemistry and so forth. Less than ten years later, in a study of women of science in America, Rossiter proclaims the importance not only of the scientific contributions of Richards, but also of the work she did in creating a political presence for women of science. Rossiter suggests that while this work was important, it had to occur outside the mainstream, the malestream, of science--a woman was simply not acceptable.

The women of science who are mentioned in Anderson and Zinsser (1988) are the wealthy and powerful women, who stood outside the gendered restrictions of society. In the sixteenth to the eighteenth centuries, women who were excited about and wanted to participate in the Scientific Revolution suffered "parents [who] criticised their daughters' absorption in such inappropriate, inelegant, and unfeminine endeavours" (p. 87).

In the precursor to this conference, the Manilla meeting, I understand there was much work done to even establish women in science and technology as an area of concern. In the Jakarta Declaration, the issue seems to have lost some import.

Because science and technology are seen to be ways into the patriarchal public world of economics, and because activities to do with the home have been labelled female, and activities to do with materials and manipulation of them with machinery have been labelled male (and technology) it has been widely argued that if girls are educated in science and technology the economic disparity between women and men

will fall away. Toward the gaining of numerically gender balanced classrooms, in Australia at least, and I understand this has happened in England as well, there has been a determined effort to eliminate the one field of study that combined both a gender sensitivity and technology in its very foundations, home economics. In a cursory glance through some literature on history and philsophy of science and technology, there is an absence of both this gender sensitivity and no connection between technology and women's ways of doing and understanding. That is not so say such literature does not exist, only that it

Philosophy

The love of wisdom, the questioning of how we understand ourselves, the wondering about ways the world ought to be and how people should contribute to making the world perfect, the development of grand visions and theories and tracts upon which to meditate...

In an essay on the history of the philosophy of science (Harre, 1972, pp. 289-296) and one on problems in the philosophy of science (Danto, 1972, pp. 296-300) there are no suggestions of gender as an issue. From about 1850, however, there had been an identifiable beginning in the history of philosophy of science. So, in more than one hundred years, women did not even rate a mention. Hardly surprising, then, is it that recently I was talking about the development of this paper to someone who was writing a post-graduate course in history of science and that person suggested I might like to write a component on the history and philosophy of women in science. When I asked why it was not automatically a part of the course, the comment came back that there was no one who could teach it. In other words, at least in that one institution, thinking of women as part of the history and philosophy of science, anecdotally at least, is still something of a rarity.

Science

What is being talked about when the idea of science is mentioned? Science is thought by many to be a process of thought, one that is logical, though the form of logic may vary, rational, in that the processes that are used are reasoned out, and public, that is made open to the public for scrutiny. Some views of science restrict the process to logical empiricism, others expand the process to be a method of democratic process in education (Dewy is one example). Science is clearly able to be more than white-coated laboratory technicians and absent-minded professors.

Girls are supposed to have an antipathy toward science.

Technology

What is being talked about when the term technology is mentioned can vary from the most sophisticated nuclear-powered military craft to new computer-operated washing machines. It can mean a new style of chimney in a house in Bihar in India or a fandangled potato peeler in the United States of America. For most there seems to be an acceptance of computers and technology being related ideas. Almost without exception is the idea that technology [illegible] implements, for the carrying out of tasks. If this is accepted, however, then there are other technologies that exist as ideas and systems, the technology of economics, the technology of democracy, the technology of language--all technologies because they are tools that help humans achieve some desired purpose or end. From the first stone that was picked up by man (many smiling point out that it was probably a woman), to the notion that technology is intertwined with progress and that therefore all technology is good, to the technologies of cyberspace (entering the internet, and so on), it is clear that technology can mean almost anything.

To allocate time here to discussions of definition is not possible. However science and technology are thought about, one thing is clear, as they are portrayed in the literature, promoted in education, and largely understood in the public, science and technology are separate from girls and women's experience and that is not good.

There are beginning voices, voices out of history, philosophy, feminism, environmental studies, geography, merging to form a new field of study, eco-feminism, deep ecology. They join the long, but soft public voice of theoreticians from the domestic perspective, who have for more than a century argued and educatedthat the ideas of technology and science must be part of a humanistic understanding for them to be of benefit to the people of the world.

Attending differently

A position on science and technology that might emerge from the UN NGO Forum in Beijing ought to take into consideration a different approach to understanding women in science and technology. Two approaches suggest themselves: Patricia Thompson's Hestian feminism, and the long used and valuable ecosystems model used in the field of home economics and family studies. Here I will take only a moment or two to indicate each of these and suggest literature that could be helpful.

Hestian paradigm

Thompson's Hestian feminism is predicated on a world view that suggests that as western civilisation evolved, the "private home domestic domain" (Virginia Woolf) became separated from the polis/patriarchal world outside the home. She suggests that this has created a distorted vision of being human. It is like having a pair of spectacles where one lens, the female or Hestian lens, is always dirty, foggy. We have learned to see through the male lens, the Hermean

lens, and yet our vision is incomplete. We must, Pat argues, polish the Hestian lens and refocus our vision for a clearer, more wholistic view.

To look at only what science and technology can do for the home and private world of family, without also looking at what the private world of home and family contribute to the world of science, without allowing the private world of home and family to influence the way(s) in which science and technology operate and the things that scientists and technologists develop is to perpetuate the distortion.

Thompson's most recent work is Bringing Feminism Home. Hynes has used this approach in asking questions about engineering and the absence of womens' voices in that field. She claims it is not that these voices did not exist, but that they simply never emerged in the dominant discouses.

Ecosystems approach

In home economics theory, an ecosystems approach has been developed that indicates the interrelatedness of individuals, families and the various systems that operate in the world, that influence and shape what is possible for families and individuals. It is a simple diagrammatic representation that is instructive in several ways. Here I only want to draw your attention to it and to indicate there might be some possibilities in such a model for reshaping the ways in which science and technology are understood in society.

When science and technology combined have been able to invent a laser that can blind the eyes of an enemy, because blinded enemies are more trouble to the opposition than otherwise physically wounded warriors, when reproductive science and technologies can create human dilemmas that are beyond the reasoning and logic of our greatest minds, when media technologies can convince huge portions of the world's population that their life is meaningless unless they watch the six o'clock news, science and technology have imposed upon humankind more than I as a woman, as a mother, as a human, can allow to go unquestioned. The questions of the past, however, are not sufficient. Finding new solutions will not do.

The task in front of us, I suggest, is the finding of new questions; questions that transcend anything we have had before; questions that place being human at the heart of the enquiry; questions that are morally and politically powered; questions that can slow the rates of change, give people time to think through the rationality of what is being developed and perpetrated...different questions, Hestian questions, ecosystemic questions, gendered questions that are sensitive to the gendered orientations from which they come.

Asking new questions

What kinds of questions might lead to a different, a woman-centred, understanding of science and technology? Will feminist technological utopias be any different to other technological utopias?

What kind of technological society do we wish or can we afford?
(Segal, 1994, p. xii)

What might be some ways to bring scientists and technologists who have these more wholistic visions together, to empower them, enable them to join the discourse?

In what ways do the divisions of science and technology and within science and technology contribute to the continuing discrimination against the interests of women and families?

What questions do you have?

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The Once and Future Action Network: Re-Envisioning Women, Science and Technology Towards 1995 and Beyond

Background

The Once and Future Action Network (OFAN) is a collaborative initiative of a group of international agencies active in the field of Gender, Science and Technology. The goal of this organization is to plan a series of activities for the Fourth World Conference on Women in Beijing, China, in 1995. These activities will promote and recognize women's role in science and technology, while linking this with the definition of a new scientific paradigm which puts people, the environment, and sustainable development first.

The common desired goal of planned activities for Beijing and beyond, is to recognize and validate women as once foremost among scientific visionaries and technological problem solvers both at the professional and grassroots levels. The programme seeks to inform and influence policymakers, planners, and development practitioners about ways in which women's full participation in science and technology can make a difference in redefining the priorities of scientific research to initiate the following: (1) new linkages between formal science and technology practiced at the professional level and informal science and technology practiced by grassroots women and men (2) stronger linkages between science "rich" and science "poor" regions in the North and South, in developing a more realistic appreciation of the profits and losses of scientific advancement in the global econonmy (3) greater collaboration between grassroots women's organizations and international development networks in the exchange of ideas, experiences, expertise, and in defining what type of science is appropriate for a sustainable future.

The Once and Future Pavilion

The highlight of the activities planned by the Once and Future Action Network is the Once and Future Pavilion at the NGO Forum parallel to the Fourth World Conference on Women in 1995. The pavilion will provide a visual representation of women's past, present and future scientific and technological talents and contributions, while linking this with the new vision of science and technology for a sustainable future.

Planned activities for the pavilion include; exhibits, interactive demonstrations, workshops and issue areas, performances and assorted events, and shops and booths. In addition to the above, the pavilion will provide women with a platform to exchange information and ideas and to strategize on how to lobby the official U.N Conference on issues relating to Women, Science and Technology. Ultimately, the pavilion should facilitate broadbased communication among similar interest organizations and individuals for other collaborative ventures beyond Beijing.

OFAN Activities to Date

To date, activities initiated by OFAN include the followin (1) an Expert Group Meeting on Gender, Science and Technology 1993, at the request of the Secretary General of the Fourth Wor Conference on Women, and of which the outcomes will feed into t 1995 Platform of Action; (2) a published Directory and Database Women, Science and Technology, which will serve as a conta resource base for the Programme Secretariat and Sub-Secretariat and a resource publication for Network members, Nation Machineries, NGO'S, formal and informal educators and oth interested groups after 1995; (3) a proposed series of publicatio reflecting the new vision of science and technology for sustainab development, including ways in which women's participation science and technology disciplines and activities can make difference; (4) and several networking and advocacy activitie including workshops on Women, Science and Technology at each the NGO Regional Forums in Latin America, West Asia and Africa.

Primary objectives of the above mentioned regional worksh are to: (1) prepare a statement addressing critical issues relati to women, science and technology, which will feed into the platfo of action for each regional forum; (2) provide documentation in t form of regional resource materials to inform and influe policymakers and planners at Regional NGO Forums and Ministeri Preparatory Meetings for the Fourth World Conference on Women, issues pertinent to women, science and technology and; (3) identify individuals and women's groups involved in Gender, Scie and Technology activities who may wish to participate in the O and Future Pavilion experience.

OFAN Organizational Framework

The framework of activities and events planned for the Forum in Beijing and continuing for a short period after conference, have been developed by a planning committee of the O and Future Action Network. This committee is composed of representative of each network organization and provides techni advice and support to the programme secreteriat. It also assi with setting programme priorities.

The programme is based in Jamaica and hosted by the Jamai Society for Scientists and Technologists (JSST). An execut board member (Dr. Patience Dennis) of the Third World Organizat for Women in Science (TWOWS), which acts as a lead agency for Once and Future Action Network, is senior technical adviser to programme secretariat.

The Programme Secretariat consists of a full-time progra coordinator (Dr. Josephine Beoku-Betts), and a part-t information officer and administrative assistant. The Secretar is responsible for the day to day management of the progra

involving networking, communications, and advocacy activities. Specific activities include ongoing liaison with sub-secreteriat members planning thematic activities for the Once and Future Pavilion and communication with other networks and institutions involved in the Once and Future experience. The Jamaica Secretariat also promotes and facilitates collaboration among member and prospective member organizations in the re-envisioning effort, and coordinates planning and preparatory meetings for the 1995 NGO Forum regarding the Once and Future Pavilion.

Other responsibilities of the Secretariat include managing the data base on "Who's Doing What in Women, Science, and Technology", and communication activities that will facilitate the re-envisioning and networking process throughout the pavilion experience and beyond.

The Sub-Secretariats

To encourage and stimulate exchange of ideas and active involvement of network members and interested groups in the envisioning and planning process, pavilion activities are organized into thematic areas representing the following Sub-Secretariats: (1) Women in Science/Women do Science Differently, (2) Entrepreneurship (Credit and Trade), (3) Appropriate Technology, (4) Indigenous Knowledge/Intellectual Property Rights, (5) Education (Gaining Knowledge), (6) Communication (Advocacy).

Sub-secreteriats are designed to serve as contact points for similar interest network members and prospective member organizations who are involved in designing and planning activities related to their thematic area for the Once and Future Pavilion. It is expected that such a system will provide for greater collaboration and exchange of ideas among a wider constituency of similar interest groups, thereby strengthening the institutional building capacity of network members. Sub-secreteriat members will also benefit through greater visibility and media exposure in the Pavilion planning process, and from access to the OFAN Directory, multiple mailing list system, series of newsletters, and dialogue through electronic mail.

To facilitate the collective process and to encourage efficiency of planning for the pavilion, sub-secreteriats are invited to collaborate in the following:

- planning committee meetings for the pavilion in October, 1994 in New York, Regional NGO Preparatory Meetings wherever possible, and in the NGO Preparatory Meetings in New York in March 1995;

- prepare news updates about their activities; and a thematic flyer which will highlight ways in which the visionary goals for science and technology can be

translated into action around sub-secretariat themes;

- fund-raising to supplement the seed grant of $US 2000-00 each sub-secretariat will be allocated to plan their activities;

- correspondence with the Jamaica secretariat and similar interest organizations involved in the pavilion experience.

- planning and preparation of the series of published resource guides and source books which sub-secretariats are invited to produce to reflect ways in which women can make a difference through participation in science and technology disciplines and activities.

Conclusion

In conclusion, the goal of the planned activities of the Once and Future Action Network is to promote the recognition of science and technology as a gender specific issue to be addressed at the Fourth World Conference on Women. Furthermore, it advocates for a change in attitudes towards the application of science and technology, to include the perspectives, skills, and knowledge of women both at the professional and grassroots levels in the agenda of the Fourth World Conference on Women in Beijing, in 1995.

Each network member will collaborate in planning and implementing these activities in a way that will reflect and strengthen their experience and expertise. The organizational framework of this programme will enable each member to build institutional capacity and facilitate collaboration and outreach with similar interest organizations to promote women's role in redefining the mainstream of science and technology beyond Beijing.

Appendix 1
Members of the Once and Future Action Network

At present, the Once and Future Action Network (OFAN) includes the following organizations: the Third World Organization for Women in Science (TWOWS); the International Development Research Centre (IDRC); the Women's Environment and Development Organization (WEDO); the Energy and Environment Desk of the World YWCA; the International Women's Tribune Centre (IWTC); the United Nations Development Fund for Women (UNIFEM); the Gender, Science and Development Programme of the International Federation of Institutes for Advanced Studies (GSD/IFIAS); the Gender, Science and Technology Network (GASAT); the American Association for the Advancement of Science (AAAS); Approtech Asia; the Intermediate Technology Development Group (ITDG); the International Federation of Inventors Associations (IFIA); the World Women's Veterinarian Association (WWVA); the Worldwide Network; and Appropriate Technology International (ATI).

Since it is expected that the network will grow during the course of the programme, it is anticipated that other women's groups, NGO's, technology institutes, education centers and development organizations from all levels, regions, and disciplines will become involved in the programme.

Appendix 2
Sub-Secreteriats

1. **Indigenous Knowledge (Intellectual Property Rights)**
   ITDG/Do It Herself
   WEDNET (Asia)
   CIRAN/CIKARD
   World Women's Veterinarian Association (WWVA)
   Asian Pacific Development Centre

   Helen Appleton (Contact Person)
   Intermediate Technology Development Group (ITDG)
   Do It Herself Programme
   Mycon House, Railway Terrace
   Rugby CV2 13HT
   United Kingdom

   Telephone: 44-788-560631
   Fax: 44-788-540270

2. **Education (Gaining Knowledge)**
   Non-Formal (Technika 10)
   Formal (FAWE, GASAT, YWCA)

   Eddah Guchukia (Tentative Contact Person)
   Federation of African Women Educators
   P.O.Box 21389
   Nairobi, Kenya

3. **Communication (Advocacy)**
   IWTC
   IDRC
   BOSTID
   South Pacific University

   Alice Mastrangelo (Contact Person)
   International Women's Tribune Center (IWTC)
   777 United Nations Plaza
   New York, New York 10017
   U.S.A.

   Telephone: 212-687-8633
   Fax: 212-661-2704
   email: iwtc@igc.apc.org

4. **Women in Science (Women do Science Differently)**
   TWOWS
   Center for Science for the People
   GSD/WIGSAT
   AWIS
   WISENET

Uganda Association of Women Engineers
CGIAR
ITDG/PTD
Science for Villages
International Federation of Inventors Associations (IFIA)

Patience Dennis (Tentative-Contact Person to be confirmed by TWOWS)
Government Chemist Department
Hope Gardens
Kingston 6
Jamaica, WI

Telephone: 809-927-1829
Fax: 980-977-0974

5. **Entrepreneurship (Credit/Trade)**
UNIFEM
Apprropriate Technology International (ATI)
International Coalition on Women and Credit
Body Shop
Women's World Banking
Grameen Bank

Valeria Budinich (Contact Person)
ATI
1828 L Street, NW, Suite 1000
Washington DC, 20036
Tel: 202-293-46 (Switchboard)
202-463-8482 (Direct)

6. **Appropriate Technology**
World YWCA
ITDG
Approtech Asia
WEDNET

Ruth Lechte (Contact Person)
P.O.Box 623
Nadi
Fiji

Telephone:679-79-0003
Fax: 679-79-0003

BEING A WOMEN ENTREPRENEUR - MY EXPERIENCE

Dear Ladies,

SOPHIE LEUNG LAU YAU FUN, 香港女企业家

It is my honour to be able to participate in this great occasion for women. Women of today have come a long way through their own making. When I was young, my mother used to ask me, whenever I complained too much, if I had a contract with God giving me the guarantee that none of my dislikes will come my way. I now share my mother's wisdom with young people associated with me. I hope they would have the same good fortune of understanding that life, and all that is associated with it, is not simply to be had, but rather to be earned and mastered with tact and determination.

As a younster, we were all taught the basic values of life. We learned what is right and wrong. We gained a notion of what is fair and unfair. The application of these basic values to whatever we do is a lifelong learning process that I call personal growth. As a young girl, I also learned by my mother's examples. Being the only daughter with many elder brothers in a traditional Chinese family, I learned how to be observant, to accept, and also how to improvise within a given adverse situation and to find satisfaction. Through my mother's wisdom, I saw that one could be influential and even get a result one wanted without being confrontational. Through this learning-by-example process, she led me to touch perceptiveness and taught me how to care genuinely. These basics traits help me tremendously in my personal growth and development.

There is a Chinese saying which states that life's primary goal is personal growth; secondary, family stability; tertiary, state governance; and fourth, world peace keeping. The teaching is that, if one is to truly succeed, one must follow these priorities and place great emphasis on personal growth and family stability. Personal growth cultivates a mature personality with ethical values and healthy principles, which lead to a level of self-confidence that enables us to approach all sorts of challenges in a very positive manner. To know that even if we fall, the fall is without remorse, defeat is accepted graciously and we learn from it. Striving continuously to improve on personal growth, I have found more certainty and harmony within myself in whatever I do, knowing that I will continue to improve, even grow, and be true to myself, for I can accept even defeat and failure as part of my learning process.

After studying at the University of Illinois and spending eight years in another culture, my husband and I returned to Hong Kong in 1973, founded our first company in 1976 and have been developing and working in our own businesses ever since. The basic values that I have acquired are applicable to every situation and each incident is a learning experience. For me the learning curve is forever. My constant wish is that not a day should pass when I have not learned something new.

Perception of life is like sitting in front of a great big screen of multi TV sets. You have t turn on each set to get specific information. The number of TVs that are on depends on yo so is the appropriateness of the information that you are watching. In other words, t knowledge you need to help you become more successful in life is controlled in your ow hands. In recent years, I have become more involved in community undertakings and as appreciate the wisdom and successes of other business leaders. I observe this same kind commitment to their personal growth, this same effort to improve their perceptiveness and sel confidence.

To be successful, women need not pretend to be tough, or to unnecessarily aggressive. On t contrary, our in-born femininity can help us to be more direct in obtaining our goals. As mature, femininity exhibits itself as part of me and who I am. As a women, I have found me obstacles to surmount and challenges to succeed in. I also have a few more roles to play a opportunities to interact with others directly, and I just love it. My associates accept me as am, with my softer approach to human relations - no disguise, no pretences, all genuiness

As in their professional role, women entrepreneurs also excel in the primary role of home making. We exercise the same entrepreneurial sensitivity to be excellent home-makers, wives and mothers, and adopt as our own, the loving challenge to bring the best out in our children To me, a strong family bonding and the goodness of our children are the most valuable thing on earth, even all the riches in the world cannot compare. God never promises us rose gardens so we work harder and sacrifice more to achieve better results. I drew a lot of satisfaction ou of this exercise.

I also learned to expand the loving care for my own children to other young people, to help and guide them in their personal growth and career with the best of my know-how. In return I earn their trust and their friendship. I also learn from them. I am practicing what my mother taught me : to give is to enlarge one's own capability of the same thing, be it wealth knowledge or experience. To me, this is the greatest contribution, women entrepreneurs can give to the society. We live by our own examples, and our interaction with people around us within our life time. We can survive into the future only by passing on our experiences and our values to the next generation.

Dear Ladies, this is my experience with life and with truth. Even though the world seems to be getting more complex and more competitive, simple values and ethics are still very basic and are vital to our success. When we build on love, caring, truth and fairness we build a better world. This is a lasting contribution women can make for the future.

The Twofold Poverty and Sustainable Development of Women in Arid Areas

Zhou Weiwen

I'm Zhou Weiwen from the Hebei Academyof social sciences. I'u talk about two issues onthe behalf of the women in the aris and semi—arid areas.

The first issue is that major povevty of the women is the twofold poverty which mears the poverty in materinl and in knowledge. This kind of twofold powerty effects the sustainable development of the women in the arid areas in the following eight aspeets.

A. Sense of values. Women of these are as Can learn more deeply through their personal experience the interdepenolent relationship between the water resources and the mankind, thas making water an object of worship, and gradually getting the habit of sepending on water. B. Marriage. women in the arid areas take marriages as the weans and spiritual sustenance of inproving life and being lifted out of adverse circumstances. They usually take the water conditions as the prereguisites of marriage, for example, the number of the wells or water pools of the family of a man and the distance from a man's home to the water resources, etc. C. Poputation and Fertility. Poverty makes Wonen place the self Value on children—bearing. in this way they sink deeper and deeper into the quagmire of having more children alae to poverty and beconing poorer due to having more children. D. Health Care. The health care conditions in these areas are terrible and people there are lack of health care knowledge due to the inadequocy of funds and public aeeumulation. New delivery method has not been spreaded in the early—liberated areas, minority areas, borser areas, poor areas and mountainous areas. E. Disease. Only 1990 of people in the areas seriously short of water can enjoy safty in using water. In the districts seviously short of water. The unsanitaryway of using water is one of the reasous aecounting forthe high rates of diseases. F. Way of life. The distinctive feature of the life of women in arid areas in the north is that most of them remain unemployed and stay at home engaged in the unpaid housework. They do not have much social activities to participate in their spare time, and some of them even do have TVs to watch. G. Religion and Superstition. The poverty and diseases due to the shortage of water resources bring great pressure on the women living in the aridareas. The usually turn to seek consolation and psycholigical balance in the religious activities and prayers to the gods for they could not cast off the yoke of the adverse environment of the arid area. H. Education. The chief in expression of the unequal tredtmeht Suffered by women in arid areas is the uneguality of having less opper-

tuaities to be education.

The second issue is the policy and proposal concerning the women in the arid areas.

A. Strengtheling the Education of Women in Arid Areas. literacy education. The aim should be to elininate the female illiterates and to make the schooling rate of girls to reach 95% befove the year of 2000. Education in techniques and skills. Enable at lenst 80% of them to master one or two practical skius in three to five years. Education of woman's quality in vesources and euvironment. Encourage them to actively approving policies concerning these matters. B. Public policies To provide more opportunities for their employment and chance to obtain land, water and other resources. To encourage women to take jobs in the secondery and tertiary industries, to speed up the service, etc. C. Participation in Environmental Protection. To provide facilities for women to plant trees, to pretect forest, water and soil, to broaden water resources and reduce lossof water, to control desertization of land and to Improve the conditions of the community when they working together with men. To provide women with opportunities of various kinds of professional training so as to enable them to master the skills of Irriiation, compound planting, conttyard. D. Encouraging the population migration of the type of Environmental Development. In some areas with severely asverse environment and severe poverly, young women should be particularly encouraged to go eway from the poor and backward living environment by leaving the arid areas to work. to do businees, to participate more social activities, to love freely and to marry outside the arid areas. E. Improving Child Bearing Consitions. The goconment should pay special attention to adapt feasible measures in the following five aspects; Women should be helped to grasp more knovledge about C. ntraception, hygiene and child—dearing. Women should be helped to deciole family planning conscientiously. Women should be helped to shake the yoke of the heavy bursen of a large family with too mang people by stimulating them with the bene—Dial interest of having less but better qualified children. It should be energetically encourage to share the vesponsibilies and duties of family plannyng between men and women. F. Health—care and hygienic conditions must be improved. Zhe government should make efforts in increasing the financial allocation for women's health care, inoluding Setting up village and town women's hea lth care centers, speading knowledge of women's health and bygiene, adopting system of regular and mobile examination of gynaecological diseases, purchasing mecessary medical and hygienic water equipment with funds from the govern ment. Society and individual.

Non-governmental Forum
-- Women and Lifelong Education

Zhuo Qingjun, China national
Institute for Educational Research

Principal experience

1) The government attaches importance to lifelong education The Chinese government pays much more attention to lifelong education. There are special administrative institutions responsible for general schools and adult schools from the central to local governments. Some research institutions were also set up. At present, two school systems have been formed in China. One is general school system, the other is adult school system. There are all together 1 435 million schools with 260 million students among which the latter accounted for 49 percent of the total schools. 26 percent of the total students. Hence, such rapid development ensured women to have enough places to receive lifelong education.

2) Mainly rely on masses and community forces. The Chinese government considers lifelong education as a massive and wide-ranging educational undertakings. So we should fully rely on masses, and rely on government organizations, enterprises, institutions, people's communities, democratic parties, neighbourhood committees and the countrysides to involve school-running besides of educational departments.

3) Undertake education in accordance with women's characteristics, during the procedure of wiping out of illiteracy, some vocational literacy courses such as sewing, feeding and weaving were organized

besides of general culture knowledge course in face of the reality of many woman illiterates in the countryside. At the same time, the knowledges of woman hygiene, scientific education of children, women health care etc. are also imparted. The National Women's Federation also set up " woman reward ". At the stage of secondary and higher level of education, a number of girl's middle schools, girl's vocational middle schools and administrative colleges for woman cadres were especially set up. Attention was also paid to training high level woman technicians. To be more efficient to develop family education, over 200,000 parent schools were set up in the whole nation so as to educate woman parents with child psychology and virtues.

4) The systems of employment work, personnel must develop in the benefit of lifelong education. China adopts a system of pre- post training before work, and emphasizes the importance of post training in adult education. The status of in-service training is considered as an important factor for check, selection, promotion of cadres.

Important suggestions

1) The government and all social sections should enlighten the knowledgement of women's lifelong education. At present, the state of women's human resource development in China is badly qualified to the needs of development of modernized construction. The rate of women's employment in China is very high. According to statistics in 1990, the rate of women's employment in China occupied 44.5 percent of the whole number of employment in China, much higher than America (42 percent), Canada (40.4 percent), France (38.7 percent), Germany (36.8 percent), Japan (34.7 percent), but the level of women employment were very lower. Most of them engaged in physical labour, a few in interlectural labour. More woman cadres act as deputies, a few as chiefs (first-hand leader). One of the reasons is that women have less chances to receive continuing education and vocational training after they entered into society. So women's lifelong education must be greatly strengthened, women's human resources can be fully and properly explored and utilized in the benefit of national construction.

2) Set up extra social women's educational institutions, and make women's lifelong education further socialized. Women's lifelong education oriented toward the socialized development. This is an inevitable trend for future development of women's lifelong education.

The orientation of social development means two things: on one hand, various schools at different levels should be open wider to the society, on the other hand, all equipments and facilities of education, culture and propaganda should be fully utilized to carry out educational activities. In this case, those women who have desire of learning can get various learning opportunities anywhere and at anytime. So such kind of socialized education must be organized, coordinated and administrated by a special institution.

3) Strengthen the work of legislation for women's lifelong education so as to make women's lifelong education gradually develop toward the track of legal system. The law of lifelong education should be timely worked out when conditions are ripe. The right of receiving lifelong education for women can not only be further guaranteed through making law and regulation, but also it must be clarified that the responsibilities which educational departments, non-educational departments and social sections should bear for women's lifelong education.

4) Teach students how to learn from early age. At present, one of the disadvantages in school education is as follows: teaching contents, teaching methods and exam method etc. are not quite right. Many students have only learned how to recite and mechanically memorize and deal with exams. They lack methods and capability of acquiring new knowledgements through their own efforts. So students must be taught how to grasp learning methods through teaching reform in education. Those who do not grasp learning methods, will become " illiteracy " in the future society.

Review of
Women´s Reproducitive Health Status in China

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People from different countries or organizations may have different understandings of the concept of reproductive health, its intenions and extentions; there may still be academic disputes over it. Yet the essential reason why it has come into practical use is that it seeks to eliminate the danger of death encountered by women in the process from pregnancy to delivery and in the early stages of infancy and child development; to help women go through pregnancy and delivery in a safe manner; to increase the survival rates of mothers and children; to relieve women of child bearing age from worries of accidental pregnancy; and to protect them from sexually transmitted diseases so that they feel respected, safe, healthy and happy no matter what kind of physiological conditions they might be in.

I. Historical Review:

a. 1950—1965 (From the founding of the People´s Republic of China till the beginning of the Cultural Revolution)

❶Facing the poverty, backwardness, high maternal mortality, high infant mortality, high fertility and the prevalence of infectious diseases left by old China, the newly founded country engaged in a patriotic health campaign to combat pregnancy—related infections and neonnal tetanus which were the major causes of maternal and child death. Prostitutes were banned and sexually transmitted diseases were treated and finally eliminated.

❷Dr. Yang Chongrui, a famous Ob/Gyn expert and one of the pioneers for the course of maternal and child health invented a new method of delivery and was the first in the world to train traditional birth attendents,

b. 1966—1976 (The Cultural Revolution)

❸Politics, economy, culture, education, science and technology were greatly influenced by the ultra—Left trend of thought.

❹Yet also during this period, many urban health workers went down to the countryside bringing with them a large quantity of medical equipment, thus strengthening township and county hospitals technically and greatly improving the quality of care and their service ability. They also trained a lot of bare—foot doctors who treated the patients using simple but practical skills similar to the appropriate techniques recommended by WHO nowadays. The international society paid great attention to the so—called cooperative medical system, which was summarized by World Health Organization as the well—known Alma—Ata Declaration which has now become a global target for the year 2000.

❺Family planning was advocated nation—wide from the early seventies and within a decade the following progress was achieved,

Birth rate	33.34‰	17.82‰
Natural growth rate	25.83‰	11.61‰
General fertility rate	5.8	2.8
Crude death rate	7.6‰	6.2‰

c. 1978—1988

❶The Constitution stipulates that women have equal rights with men in terms of politics, economy, culture, society and family. The State Council also revised "Law of Marriage", "Rules for Marriage Registration" and "Regulations for the Protection of Female Workers"; and Ministry of Public Health and Ministry of Civil Affairs jointly issued "Regulations on Premarital Physical Examination".

❷With the health policy putting prevention of diseases at the first place, immunization coverage rate reached 85% and the work of perinatal care in the urban areas, maternal and child systematic management in the rural areas was started. Some of gynecologic diseases were treated free of charge by the government.

❸Under the open policy, our country started extensive cooperation with UNICEF, UNFPA and WHO.

❹In the early eighties, family planning was determined as one of the essential national policies, which was followed by health education, free supplies of contraceptives and the improvement of contraceptive methods and techniques. As a result, fertility rate was gradually decreasing, with birth rate fluctuating around 20‰, and total fertility rate around 2.5, while life expectancy was maintained at 68—69 years.

Ⅱ. 1990—An Epoch—making Stage

❶In 1990, three major international events brought new light for the health and and welfare of children:

——Ratification of Convention on the Rights of the Child;

——World Congress on Education for All;

——World Summit for Children.

❷The World Summit for Children held in September 1990 was hailed as an epoch—making milestone and opened a new chapter in history of mankind. It produced the "World Declaration on the Survival, Protection and Development of Children" and the global "Plan of Action" for implementing the World Declaration. The World Summit and the global, regional and national operations after it have been playing a profound role in child development around the world.

❸On March 18, 1991, Premier Li Peng signed, on behalf of the Chinese Government the two documents and thereby made a solemn promise to the international society. It means that from 1990 till year 2000, China is to reach seven major targets including: Reduction of maternal mortality rate (MMR) by 50%; reduction of infant mortality rate (IMR) and under—five mortality rate (U5MR) by one—third and so on.

❹Some international officials were quoted as saying, "If the Chinese Government is committed

to doing something. it is sure to make it." Some UNICEF officials hope China could take the lead in achieving the World Summit goals.

●In February, 1992, the State Council formulated and issued a "National Programme of Action for Child Development in China in the 1990s". And all the provinces and ministries made provincial plans or plans for different agencies according to their specific situations. The Ministry of Public Health, the first of the 19 ministries to submit its plan, linked the targets of the "Programme of Action" closely to those of the international cooperative programmes. Governments in 305 counties, 177 prefectures and 30 provinces or autonomous regions all made commitment in terms of counterpart fund, relevant policies and so on, thus making the MCH/FP program a government action.

●The National Working Committee for Children and Women Under the State Council, the former Coordinating Committee for Children and Women, which is headed by the State Councilor, Madame Peng Peiyun, is now working with relevent agencies to formulate "Programme of Action for Maternal Development in China in the 1990s".

●The National People's Congress has issued "Law for the Protection of the Under-age" and "Law for the Protection of Women's Rights", passed "Convention on the Rights of the Child" and reviewed "Law for Better Outcome of Pregnancy".

●Through international cooperative programmes, MCH speciality was established in six medical universities, which introduced the participative teaching method. 360,000 township and village doctors were trained during the first two waves of training while the third wave of training started in January 1994 and is to be finished by the end of 1994. Through all these training activities, a number of appropriate techniques were popularized while in the cities, through the Baby-friendly Hospital Initiative, 207 health facilities became Baby-friendly Hospitals. This year more than 500 hospitals will become Baby-friendly.

Ⅱ. Great Achievements

——MMR: From 1,500 per 100,000 in the early years after the founding of the country to 76.5 per 100,000 in 1992;

——IMR: From 200-250‰ in the early years after the founding of the country to 48.34 in 1992;

——NMR (neonatal mortality rate): 33.91‰ (surveillance data in 1992)

——U5MR: 59.08‰ (surveillance data in 1992)

——Total Fertility Rate: From 5.8 in 1970 to 2.0 in 1992;

——Birth Rate: From 33.34‰ in 1970 to 18.24‰ in 1992

——Mortality Rate, From 7.6‰ in 1970 to 6.2‰ in 1992

——Contraception Rate: 83.4% (1992)

——Child Immunization Coverage Rate: 85% both at the provincial and at the county level;

——Number of persons who received screening for maternal diseases by the end of 1993: 32,818,041

——Number of persons who received premarital physical examination by the end of 1993: 3,304,170

——Rate of aseptic delivery in the rural areas by the end of 1992: 85%.

Ⅳ. Challenges

➊Large population:

1.17 billion in 1992 with an annual increase of 15 million

Low GNP: 370 US dollors

Low literacy rate (especially among women):

78% in cities and 48% in the countryside (data in 1991)

➋There are still 80 million people in the minority, remote or poor regions who are short of the essential needs of life.

➌The socialist market economy has brought about new situations and new questions to consider. And a lot problems need to be solved such as resources and the stableness of the staff.

➍The professional competence of the staff is far from sufficient.

➎There exists a great disparity among different regions in terms of maternal mortality rate, although the national average MMR may be lower than that in other countries with similar economic background. It is estimated that each year more than 20 thousand Chinese women die because of preventable obstetric factors.

➏There is also a disparity among different regions in terms of infant mortality rates. A large part of the infant death happens in neonatal especially early neonatal stage, therefore it is important to improve the ability to treat emergency cases and skills for neonatal resuscitation and to increase hospital delivery rate especially in the rural areas. Thus we are facing problems in terms of resources and time, and also problems concerning how to allocate the available resources.

➐85% of contraceptive measures are taken by women in China. Therefore a large amount of work is to be done in order to change the traditional ideas and encourage men to take responsibility in family planning.

➑The health of women and children are being endangered by sexually transmitted diseases, HIV infections, AIDS as well as smoking and pollution of the environment.

V. Perspectives

➊Experience in other countries has shown that women's education background, their economic and social status play a critical role in safeguarding their rights of reproductive health. So their reproductive health could be improved if they are given more chances of education and employment.

➋By strengthening the service ability of the current MCH/FP system. MCH staff are encouraged to work hand in hand with pediatricians and Ob/Gyn doctors to serve the needs of women and children.

➌Training of the professional staff is to be strengthened in order to improve their technical competence, their attitude and their ways of service. Criteria concerning the quality of MCH/FP services and basic service protocols are to be formulated.

➍By strengthening health education and counseling ability, the ability of women to make use of the MCH/FP services will be improved.

➎Improvement of reproductive health service means betterment of the status of women. China is seeking to achieve the targets listed in the "National Programme of Action for Child Development in China in 1990s", which will undoubtedly result in the reduction of birth rate.

the administrative prodedures for me without my being told. I was unhappy and psychological unbalanced. I felt to have been deprived of the right to do more work when I still could. I think women should strive not only for equal rights with men but also for the equality of personality as well as that before law and opportunity.

Usually, a person in a society should have one's rights and at the same time does his relavent social responsibilities. Women of China must be aware of our duties to our families, to our country, to our nationality and also to the whole world..Our rights can only be obtained by well fulfilling our social obligations.

The awareness can only be acquired through education, especially fundamental education.The longer I am a teacher, the more I realize the importance of educaiton of the younger generations. I learn this from my students, who covered the age from five or six to eighteen or ninteen.

In the past forty-five years, we have won great achievements in popularizing education. But the quality in many fields is lagging far behind. To my opinion, it is an urgent task in China to raise the level of leading staff and school teachers.

For example, we should be aware both the successes and problems in the economic development. One of the biggest problems is that the environmental situation on the whole

is getting worse and worse. Isn't it everyone's duty to protect the earth we all live on" Unfortunately, the sense of environmental protection is very weak in China. In Chinese schools, there is not any course concerning this problem. Only in recent years did some people begin to learn its importance. I myself became much concerned about this porblem only two or three years ago. I think I can do something at school. Just at that time, I was invited by an American friend of mine to get some students to take part in editing a children's editon of Agenda 21. This was sponsored by UNESCO. As I was no longer teaching at school, I had to get some voluntary students. With the help of my teacher friends, I was glad to have about five. Three times we talked about the environment situation in Bei jing. The students decided to take some photos. In their spare time, some went to a park in the suburb and took photos of birds' nests hung up to the trees by school children in the past few years. Some took photos of the newly-built sections of Beijing with clean roads, trees and flowers beds. Others offered photos of polluted lake in the inner part of the city, and photos of chimneys with smoke of different colours coming up. These were taken in an Iron and Steel Works in the western suburb. All the photos were posted to the editors of the above-mentioned book in London. It came out early this year. And here it is.

In China, nongovernmental activities in environmental protection has just begun. So far as I know some young women scholars are doing educational work in this field in a middle school and I was told that they are quite successful. They are now doing summary and planning to spread their experiences so that more schools can be involved.

The biggest difficulty is that no suitable materials or books are available for school children. When the kids and teenagers want to learn more, they had to go to the dull books for adults. Sorry for my frank ness. We badly need support and help from friends from abroad.

Difficulties in and Strategy for Girls' Education in West China

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I The problem of Girls' difficulties in attending school in improverished regions of West China is to be solved.

Education is the basis for the improvement of women status. Chinese government put forward as a goal. The realization of primaliy popularizing nine-year compulsory education and basically eliminating illiteracy by the end of this century, and such a goal conforms to the requirements in 'Nairobi prospective Stratregy'. To fulfill this task, the key lies in the process of developing girls' education in the western area. that's because

1. the ten provinces of west china covor a large area, whore the imbalance between town and countryside is sinking and where both natural andhuman uman resources are unexplorted. According to the statistics of the fourth population census of 1990, of the total 180×10^6 illiterates, 2/3are women. By 1993 Academic year, there are 2.61×10^6 school age children who fail to attend school, among whom 1.734×10^6 are girls, which amounts to 66.4% of total, more than half of them living in the western ten provinces. Girls of western Impoverished Region, especially girls of minority nationalities has become an extraordinarity difficulty-stricken group in a region with unfavorable situations, and the difficulties they meet in attending school has turned into a main obstacle in the popularization of nine-year compulsory Education, in the primary elimination of illiteracy and in the removal of inequality of educational opportunity between men and women.

2. The problem of girls' eduucation is the most prominent in provinces such as Gansu, Qinghai, Ningxia, Guizhou and Tibet. Low school attendence and high drain rate result directly in high ration of illoteracy among women. Girls are mothers of the future and, as a result, mothers are lowly-qualified, girls marry young and give several birth, and poor and ignorant, young girls have greater difficulties in attending school. certainly, the phenomenon can not be isolated from its local social and historic background as well as human and natural conditions.

Compared to 1991 Academic year in 1993 in eight experimental schools in Ningxia thenumber of girls in school increased by 21.6%, the percentage of girls to students in school increased from 33. 1% to 38%; girls' school attendence increase from 70% to 89.6%. In the five schools of Gansu, the number of girls in school increased by 16.7%, the percentage ofgirls in school increased from 35. 6% to 39. 1%, girls' school attendence increased from 63.9% to 77.3%. In the nine schools in Qinghai, thenumber of girls in school increased by 33. 2%, the percentage of girlsin school increased from 32. 1% to 37. 8%, girls' school attendenceincreased from 37.2% to 90.8%. This is an unprecedented success

2. Through the experiment. , we also realize that to develope girls' education in disadvantageous areas is a profound social reform and it needs the close co-operation between various elements , such as plan, scientific research, propaganda, national and international communication and co-ordination. Based on this understanding, "To welcome 95 world's Women Conference ---- International Academic Semina on Girls' Education" was held this August, which was sponsored by Women Study Center of Peking University, Institute of Educational Research of the Three Western Provinces, Qinghai Education Bureau and Qinghai Women Association.

3. based on investigation, an oral history of girls' education in the three provinces in North West is being written, which is to be published next year.

4. This August, a conference to assess the experiment on girls' education in three western provinces is held in Gansu. Through scientific assessment, the meeting summarized the successful practice of the girls' education in three western provinces and called on to turn research results into administrative policy and put the development of girls' education as an important item on governments' agenda.

Suggestion to overcome the difficulties in girls' education in China.

Seen in the light of continual development of China in the 21century, difficulties of girls in attending school is not a small problem in action, but a matter of importance which is directly related to the sound and continual development of China in the century. So, the Gorernment, National Departments, All Chinese WomenFederation, The State Quality Commission and the Communist youth league should put the job on the agenda of importance and create in the whole society an favorable environment for girls' education.

Situation of Girls' Education in Five Western Provences

	Ration of Girls' Elementary school Attendance % (1993)	Percentage of girls in Graduating Classes % (1990)	Percentage of female Illiterates and Semi-illiterates among minority groups to the population over 15 % (1990)
Nation	91.82	45.8	41.85
Gansu	98.08	89.5	81.48
Qinghai	78.62	42.2	79.80
Ningxia	90.81	42.5	64.88
Guizhou	86.59	38.9	82.28
Tibet	45.34	20.7	86.55

II. The direct participation of academic and scientific research departments in the research and practice of girls' education provides an important strategy in improving the environment for girls to attend school.

1. Since 1992, the Institute of Educational Studies in the three western provinces, Gansu, Qinghai and Ningxia, has been co-operating with women studies center of Peking University. By investigation of the reasons, studies of the documents and history, and comparative research on Six Asian-Pacific Nations, they put forward the experimental hypothesis, "Integrally improve the environment of girls' education, effectively solve the difficulties of girls to attend school" and began to carry out experiments on girls' educaton in the three provinces since Fall, 1992.

The sample of the experiments is limited to 22 countryside elementary schools in 15 impoverished counties, the forms, both formal and informal, range on a large scale, The objects of the study includes all the school age children within the service extent of the 22 elementaryschools. Besides Han, the nationalities is composed of Hui, Zang, Tu, mongol and sala. The period covers from september, 1992 to July, 1995. After tow years' study, the experiment bears out successful fruits and the environment for girls' education has been greatly improved and the rate of girls' school attendence has increase obviously.

PREPARATORY SYMPOSIUM FOR THE 1995 NGO FORUM ON WOMEN, SCIENCE AND TECHNOLOGY

Beijing, 24-25 September, 1994

Julia Marton-Lefèvre
Executive Director
International Council of Scientific Unions (ICSU)

Women, unfortunately, do not yet play a significant enough role in international science. The only other time that I found myself in a room full of women scientists at an international scientific gathering was at the inaugural meeting of the Third World Organization for Women in Science (TWOWS) in Trieste in 1988. Otherwise, sadly, international, and probably national, meetings on science consist of a large majority of men. This will surely change, but most probably not significantly until the next generation.

It is comforting, however, to believe that I have my job as Executive Director of the International Council of Scientific Unions, not because I am a woman, but because I was a qualified candidate for the job. I am a little worried that today too many jobs are offered to women on a token basis. We need, of course, to get these jobs, and once we have them, to prove our capabilities, but all positions should be given on a merit basis. We need therefore to continue to strive to convince our male peers that we belong in the professional world and indeed that this will not take away from our other biological talents. I personally have found mixing a demanding

2. To develop free elementary compulsory education in impoverished areas, the supplementary funds from the government for compulsoryed ucation in impoverished regions, and the funds of 'Hope Project' and'Budding Plan', should be put together and used as a whole. At the sametime, laws should be passed to enforce the right and obligations of support and receptio of education, and thus guarantee the right of the group in the m disadvantageous situation to receive elementary compulsory education.

3. Culturing teaching staff is the most urgent task and national institutes of advanced education, esp. Normal Universities and Research Institutes of Advanced Education should do something to improve the situation of girls' education.

job with raising a family an invigorating and enjoyable challenge.

I would like to take this opportunity to explain to you about two international scientific bodies which should offer the opportunities for women to participate in scientific programmes outside of their countries. Selfishly I shall begin with my own organization, ICSU, which was established as the International Research Council in 1919 and became the International Council of Scientific Unions in 1931. It is an international, non-governmental and therefore independent, organization whose basic objective is to encourage international scientific activity for the benefit of humanity by upholding the principle of the universality of science. This principle entails freedom of association, expression, and communication in connection with international scientific activities without any discrimination on the basis of such factors as citizenship, religion, age or sex.

While in other fields a variety of organizations were set up to represent more specific areas of scholarship, the early founders of ICSU, in their wisdom, sought to bring the range of disciplinary and national interests in the natural sciences together under a single organization. This decision has been an important source of strength for ICSU.

ICSU's Members are national academies of science or similar bodies in 92 countries (the China Association for Science and Technology, CAST, is one of these), and

International Scientific Unions in 23 disciplines ranging from astronomy to geology. Several of our Union members, in the areas of geography, anthropology and psychology, help provide a much needed bridge to the human sciences. The complex web of ICSU Members is supplemented by 29 Associates in areas with important interface with invigorating activities.

Each Member is perfectly capable of carrying out work on its own, either at the national level or internationally in a single discipline. It is when activities in areas of common concern, or of an interdisciplinary nature are desired that the role of ICSU is important. Thus, ICSU has, since its early history, pursued a vigorous campaign to protect the freedom to conduct science and to easily accede to scientific data and information. Other activities of common concern include science education, the improvement of the level of science and technology in developing countries and lately on providing assistance to the scientific communities in Eastern Europe and the former Soviet Union. The principal mechanism for such activities has been the creation of ICSU interdisciplinary bodies in areas such as Antarctic, Oceanic and Space Research, and the Environment.

In addition to these interdisciplinary bodies, of which there are over 20 in full activity today, ICSU has long been involved in mounting global programmes concerned with the environment. The International Geophysical Year in the mid-1950s, the International Biological Programme (from 1964 to '74), and the Global Atmospheric Research Programme (in the

1970s), all pointed the way to the major programmes which are the pieces of the puzzle I shall explain today. All of these activities involve thousands of scientists throughout the globe driven by the common language of science, a common curiosity to understand our planet; and the common knowledge that science is a truly international endeavour.

In my life as Executive Director of ICSU I am constantly involved in setting up groups of scientists and science policy persons to work on international scientific issues. We are always on the look-out for talented individuals who can make a contribution to the problems we are addressing. It is unthinkable to ignore half of humanity in such a search, but somehow the talented women scientists are not yet well enough known to us, and although the efforts we make to find them are earnest, there is room for a great deal of improvement. I hope that occasions such as this one and the preparations to the 1995 UN Conference will lead to the fuller participation of talented women in science and technology and indeed in all areas of societal concern.

WJH 21

Science and Technology for Women
A Critique of Policy

Padmini Swaminathan

Based on a study of the components of the state's science and technology policy for women, as propounded in the five-year plan and other documents, this article analyses the larger question of women's, specifically feminists', relation to the state. The author, citing the failure of policies based on sex-role analyses to bring about the social changes desired by feminists, challenges the notion that sex-role conditioning can be reversed or removed by appropriate state intervention.

STARTING with the Sixth Five-Year Plan, the Plan Documents incorporate a chapter on 'Women and Development' highlighting the achievements and the tasks undertaken and proposed to be undertaken by the government and its various bodies to improve the overall 'status' of women. These initiatives by the government *on behalf of women* are moving forward even before feminists, both theorists and activists, have fully grasped the implications of these moves or their long-term impact. It is crucial to debate these issues from a theoretical as well as a practical point of view since government policy on 'Women and Development', particularly in the field of science and technology (which in the chapter on 'Women and Development' is designated as 'science and technology *for* women') has built into it the socially constructed sexual division of labour over time.

Our paper is concerned with the larger question of the relation of women, and more specifically of feminists to the state. Hitherto it has been assumed (and the Indian plans still assume this) that sex-role conditioning can be reversed or undone by appropriate intervention, say, by changing curricula, reforming religious practices, using the law for redress of grievances, etc. It has increasingly become clear that policies based on sex-role analysis are not anywhere close to bringing about a comprehensive social change as desired by feminists.

Our analysis of the above question will be done through a study of the components of the state's science and technology policy for women as propounded in the five-year plans and other documents. We intend to show that:

(a) The manner in which the chapter on 'Women and Development' is conceived and dealt with in the plan not only forecloses any limited option there might have been of 'including women' in the main body of the plan, but more important and disturbing, it designates a number of issues as 'women's issues' reinforcing the oppressive effects of an ideology based on what Anne Sasson calls "the male model of work and the sexual division of labour implicit within it". "The male model of work explicitly assumes one human being in paid work for forty hours or more a week. Implicitly, it is presumed that domestic tasks will be taken care of by someone else at home full time. Almost no one enjoys the services of a full time housewife any longer, and most domestic tasks are in fact only taken care of because women work a second shift. ...The male model of work does not 'fit' with children whatever the childcare arrangements" [Sasson (ed), 1987: 165-66].

(b) The policy pronouncements on 'science and technology *for* women' very sharply reveal the masculine character of the state (masculine here refers to not only the socially constructed structures attributed to men in our patriarchal cultures but also the naturalistic ideology that defines the framework for action on the part of the state). These policies emphasise among other things the paying of "special attention to development of low, cost-efficient fuels and systems of delivery of such fuels fodder and water supply, particularly development of household solar cookers, solar drying equipment; simple technologies for facilitating household work . . . and *technologies relevant to women's needs*" (emphasis ours) [Government of India: Ministry of Social Welfare, 1981].

Thus the very conception of 'science and technology *for* women' is premised on a sexual division of labour where the details of daily life, including child care belong to the domain of 'women's issues'.

Our analysis of the state's science and technology (S and T) policy for women is based primarily on the *Report of the Working Group on Personnel Policies for Bringing Greater Involvement of Women in Science and Technology* brought out by the ministry of social welfare in 1981. Other policy pronouncements of the government on S and T for women contained in the five-year plan documents do not in any way add to what the above working group (WG) has stated in its report and/or depart from its framework. The terms of reference of the WG were as follows:

(1) To review the extent of participation of women in scientific establishments at different levels.

(2) To consider the needs and difficulties of women scientists that may act as constraints in their fuller participation, and

(3) To suggest suitable measures for facilitating and promoting greater involvement of women in S and T. Underlining the document not explicitly stated but with which we take issue are the following propositions:

(a) Women's nature is alien to science (and therefore the special need to have a separate S and T programme for women);

(b) Women, again because of their nature, need a *different* kind of science.

We have regrouped the observations and recommendations of the WG under different sub-headings to facilitate analysis and discussion.

I
S and T as a Career for Women

(i) The WG noted that there is lack of complete data on the participation of women in scientific and technical positions. The data made available for individual establishments/progammes show women's insignificant number and also their representation at comparatively junior levels with very few women at higher policy-making levels. There is moreover, a definite concentration of women in some subjects like biology and chemistry with very few of them taking up courses in engineering, earth sciences, etc.

(ii) According to the WG very few girls pursue career in S and T as a result of various social and cultural attitudes, lack of requisite educational and other facilities which would otherwise have enabled them to opt for education in these fields.

Having located thus the low participation of women in S and T, the WG has recommended among others the following remedial measures:

(a) Forty fully paid scholarships should be reserved for women every year to cover their entire education in the engineering subjects in the Indian Institutes of Technology and suitable number of stipends should be earmarked for them in engineering subjects in other institutions of higher learning.

(b) A certain percentage of scholarships from the National Talent Search should be earmarked to enable women to take up courses in science and engineering.

(c) Restructuring of courses in women's colleges and institutions to be taken up where necessary.

(d) Text books in science should pay special

washing, which are the tasks predominantly performed by women, need special attention. (e) The group also recommended that women should not be put in hazardous occupations and professions where they are biologically not suited. Nevertheless, science should offer a variety of occupations and professions which are safe and compatible with family responsibilities. Such occupations could be, for instance, in the fields of electronics, food processing, agricultural operations, computer science, architecture, draughtsmanship, etc.

The entire set of recommendations (a) to (e) is premised on women's prime responsibility being that of bearing and rearing of children, automatically relegating their professional life to a secondary level. And while the report of the WG gives an air of trying to 'improve' the 'status' of women particularly in the field of S and T, a careful reading of the recommendations starkly brings out what we referred to earlier in our paper as the masculine character of the state.

When an analysis starts (like the WG's) by emphasising what women and men *do*, it inevitably raises questions about the sexual division of labour and about the related division of social life into 'domestic' and 'public' domains, the former comprising women's activities and the latter those of men. Feminist literature by now has covered quite an extensive ground raising fundamental questions in almost all disciplines including the so-called objectivity and social neutrality of science and scientists [*Bleier (ed), Second Printing, 1988*]. Suffice it to refer to some of the issues raised and myths exploded in these debates to lay bare the futility of trying to use the state machinery as a means to transform the situations of women.

The view that woman's child bearing function determines her productive activities and social relationships is commonly assumed in most disciplines and accepted by many scholars. "This reflects the fact that sooner or later in looking for ultimate explanations of women's condition, the one irreducible and incontrovertible difference between women and men is women's capacity to bear children and this must, therefore, account for all the other dichotomies and inequalities, whether or not they follow logically. This view unfortunately employs fundamental assumption of biological determinist theories and reflects our own ethnocentric blindness to alternate modes of interpretation. It is important to see that, unlike breathing, for example, the biological capacity to reproduce does not necessarily mean that one *has* to reproduce or even be heterosexually active, nor does it dictate the social arrangements for child nurturance and rearing or determine how child rearing affects one's participation in other cultural activities. Whether or not, we bear, nurse or mother children is just as much a function of cultural, social, political, economical and, no more importantly, biological factors as whether we are poets or soccer players" [Bleier, reprinted 1988, 146].

Beginning with Engels (reprinted 1977), there has been an ongoing debate on the origin of the oppression of women and the emergence of the present system of sexual stratification. Engels believed this to be the result of qualitative changes in production leading to the development of private property, social classes and the monogamous family. But he assumed that the entry of women into social production in a society where the means of production have become common property would lead to changes in sexual relations. This belief has been challenged by feminists [Sayers et al, 1987] given the evidence from socialist societies where the entry of women into the production sphere has not been accompanied by any radical change in the ideology of gender. On the contrary the sexual division of labour has remained intact thus institutionalising the double shift the women work.

The WG does not even enter into such discussions. It just proceeds from the assumption that S and T should be compatible with women's family responsibilities.

The tendency to play loose with languages and logic is borne out by recommendation (e) which talks of 'hazardous occupations or professions' biologically not suited for women and therefore the need for occupations or professions that are safe and compatible with family responsibilities. The leap from here to characterising electronics, food processing, computer science, etc, as preferred occupations for women has not been demonstrated just as the leap from pregnancy to the biological necessity or obligation for mother involvement in child care has not been established.

The emphasis on biological unsuitability and/or hazardous occupations in the case of women is questionable. It is more a consequence of social prejudice that views reproduction solely as a women's issue. As Sayers points out: "As matter of biological fact, however, many of substances now adduced on grounds for excluding women from certain sectors of industry are as hazardous to the offspring of me as to those of women" [Sayers, Reprinted 1986: 22-23]. Further, while vociferous demands are made to exclude women from certain sectors of industry on grounds of biological unsuitability no questions are being asked as to whether the jobs traditionally being done by women (leather including tanning industry, bidi rolling, etc, even domestic services and sweated needle work that coincide with women's 'natural' sphere) are at all biologically safe.

The singling out of computer software and programming as an area where "the trend all over the world is to employ relatively more women" and therefore a field to be encouraged and pursued for Indian women ignores completely the existing literature which clearly documents that "computing is an example of a new industry where jobs are supposedly non-sex-typed yet gender divisions are as central in the organisation of work here as elsewhere" [Game and Pringle, 1984: 19]. Furthermore, designating areas/jobs/occupations as "suited" to women under the garb of promoting the participation of women in new fields amounts to nothing but promoting the perpetuation of the ghettoisation of women in particular jobs/occupations with all its attendant evils and injustice—a scenario that the feminist movement all over has widely documented, critically examined, vehemently opposed but has not been able to arrest.

This brings us to the role of the state which assumes importance in the context of the dependence of the feminist movement on the state to redress most of its grievances ranging from violence to securing equal remuneration for work of comparable worth. Through an analysis of the government's National Perspective Plan for Women (NPP) [Government of India, 1988], the Report of the National Commission on Self-Employed Women and Women in the Informal Sector (NSCEW) (June 1988) and a critique of the NPP (A Perspective from the Women's Movement), we hope to show how women's subordination is being restructured within a situation where new opportunities are being provided by a welfare state for women as citizens and employees. It also reveals the contradictions these new opportunities have produced and which the state finds impossible to overcome.

A comment or two on the perspectives from which the Five Year Plans of the country view 'development' is essential before we proceed to the above documents. Precisely because much of 'development' is measured in terms of, say, *growth rates* of agriculture, industry and other sectors, the *quantum* of different materials produced like steel, fertilisers cement, etc, amount spent on S and T, etc, without a *qualitiative assessment* of what development has meant to the lives of the people in terms of availability of very basic necessities of life, one finds, plan after plan, that the component which really addresses itself to the vast majority of, specially, the rural population (the Minimum Needs Programme) being relegated to the end chapters of the plan document. This is also the section which gets its share of resource substantially axed whenever there is a resource crunch.

By its very definition, the Minimum Needs Programme covers the barest minimum requirements of the population, namely, drinking water, fodder, fuel, rural health and sanitation. The *Draft* Fifth Five-Year Plan [Government of India, Planning Commission, 1974-79] is the only document which spoke of a National Programme of Minimum Needs aimed at establishing throughout the country "a network of certain essential services on a co-ordinated and integrated basis, given certain predetermined criteria of uniformity and equality" (p 87). More important, the *Draft* recognised that "the emphasis placed under this programme on the integrated planning of various services and facilities with a view to bringing about their physical convergence also necessitates the adoption of new procedures, for physical planning, decision making and the delegation of responsibility" (p 91). Subsequent

plan documents (including the Fifth, Sixth and Seventh Five-Year Plans) while dealing with the different components of a minimum needs programme under separate headings, have abandoned this integrated approach to the whole issue of survival specially in the rural areas. Worse, starting from the Sixth Five-Year Plan, a number of such issues which should rightly form the domain of so-called "planning for a just society", have found their way into the chapter on "Women and Development' and are now being seen and discussed as 'women's issues'.

It would be premature to pronounce a judgment on the Draft Approach to the Eighth Five-Year Plan [Government of India, Planning Commission, 1990-95] in the absence of details; but an approach that begins by treating women as a "vulnerable" section of society can hardly go far from a feminist point of view. The masculine bias in the approach to the whole issue of gender justice is revealed in statements such as "The first step is a recognition of the dignity of *women's work* and a proper understanding of its dimensions and contribution in the Indian context" (emphasis ours). The thrust areas identified by the approach include the following:

(1) The basic approach would be to empower women by raising their status and bring them into the mainstream of national development not as mere beneficiaries but as contributors and partakers along with men.

(2) Existing lacunae in conceptual frame and data base (referred to earlier) will be corrected and applied research encouraged for this purpose.

(3) Determined steps will be initiated for identification of women workers and their registration, thereby adding to their visibility and acknowledging their contribution.

(4) Constraints and hurdles will be removed in order to expand their access to and control over resources, through legal and administrative action.

(5) The criteria and processes for determination of wages and social security will be reviewed and rationalised to provide recognition and equitable return for women's work of all kinds.

(6) Women who have been victims of wanton destruction of *their fragile survival systems for fodder, fuel, water and raw materials* will be encouraged to get organised so as to play a leadership role in ecological regeneration (emphasis ours).

(7) Women will be encouraged to mobilise themselves to join co-operatives, trade unions, associations and other democratic organisations with a view to realising their full potential for development.

Unless the Planning Commission spells out in detail how these thrust areas are to be operationalised *differently* during the course of the Eighth Five-Year Plan period than what has been obtaining all these years, it is difficult to foresee any visible benefit accruing to the vast majority of women. As far as point 6 is concerned we are back to square one. The fact that collection of fodder, fuel and drinking water and such other chores are predominantly performed by women is no justification for treating them as 'women's issues'; on the contrary it denotes a complete abdication by society of its responsibility towards the poor and underprivileged in general and of women in particular. Point 7 again raises in the absence of any further details the whole question of the patriarchal structure of the existing organisations and how a Planning Commission's "encouragement to women to mobilise themselves" can change the character of these organisations.

It is this inversion of priorities and the thoroughly distorted perspective from which the formulation of the five-year plans suffer that we consider the chapter on 'Women and Development' and the designation of a whole range of issues (which should rightly be the prime concern of society as a whole) as women's issues as totally damaging to the cause of women's movement in this country. From the male perspective (and much of planning in this country is informed from a male perspective) these are non-issues. Although men's traditional role has been challenged by women and by changes in the economy and in society as a whole, it has remained relatively static. Men's experience of a highly segregated labour market and of women (most of them with some paid employment) continuing to carry out domestic and other services, including child care, reinforces sexist assumptions that the division of labour which exists is natural and necessary.

Coming to documents that specifically deal with the position of women in India, we find that, broadly as far as their evaluations of the impact of developmental plans and programmes on women are concerned they have brought out in quantitative and qualitative terms the deteriorating position of the rural population and the urban poor and of women in particular. Yet underlying their recommendations is a fundamental assumption that *either* the state provides services or the family, that is, the women in almost all cases, does. The less the state does, the more is done or has to be done by women. This form of feminism automatically looks to the state to provide the servicing work now being done by women in society without questioning the complex interrelationship that exists between the organisations of production, the domestic sphere and the limits of state intervention. Given the 'male model of work', the partial services provided by the state and the almost static traditional role of men, very little change can be effected in the quality of women's lives, with the result that women are forced simply to do more and accept a double shift.

To give a few samples of the recommendations made by these documents:

> The problem of safe drinking water is very acute. Poor women have to spend a number of hours every day and have to walk long distance to fetch water. This responsibility is exclusively theirs...
>
> There should be increased plan allocation for providing drinking water to villages and stepping up the implementation of programmes as water is a basic right of women
>
> It is necessary that there should be shifts for girls at suitable times so that they can assist

their mothers in work and go to school.

The commission recommends evolving of a strategy to promote organising of women on a large scale. The government should play an active and positive role in this context.

The National Commission (therefore) places major responsibility on the political leadership for improving the status of the unprotected women and giving them political visibility which is lacking at present. [NCSEW]

Problems specific to women have to be highlighted in considering issues like fodder, fuel, and drinking water. Since these directly concern women, their involvement in all programmes related to such issues must be given prominence. Employment of women in hazardous jobs should be forbidden and suitable steps should be taken through legislative measures.

Training in the nine sectors of women's employment, viz, agriculture, dairying, fisheries, small animal husbandry, khadi and village industries, forestry, handlooms, handicrafts, sericulture must receive priority. [NPP]

The NPP even describes as "heartening" the setting up of a cell on 'science and technology for women' in 1982 by the department of science and technology. This cell has divided the "various technologies required for women" into the following four areas—technologies required for drudgery reduction; employment generation technologies; health and sanitation technologies; and technologies for minimising occupational hazards.

The critique of the NPP brought out by women's organisations all over the country also makes the state responsible for creating "conditions which allow women to reconcile their responsibilities as worker and mother".

Our quarrel with the above documents is not just with the implicit and explicit ways in which their recommendations endorse the dominant viewpoint that women's productivities are constrained by their child-bearing capacity and by the lack of overall support facilities and therefore the need for state intervention in a big way by the inadequate grasp of the complexities of the whole situation and therefore the limited impact of any state intervention.

In the first place, it is imperative for the women's movement in this country to get out of this "women's issues" syndrome and realise that as far as the economy is concerned, the role of women is not simply a side issue but central to the manner in which the entire production is organised. If we start considering at any one moment in time the array of services needed to provide for the needs of individuals, family household units and society as a whole, the interrelationships between these various services and the significance of the almost invisible and/or unrecognised tasks performed by women will stand out starkly. By designating such services as "women's issues" we become partly to the assumption that a woman's role is flexible, that her participation in the labour force is marginal.

Furthermore terms such as 'women oriented jobs', 'occupations hazardous to women', 'condensed courses for female children' used in the recommendations made by the women's groups mean implicitly, a subscription to biological deterministic theories which have been used both to explain inequalities and to reinforce them. Theories purporting to be scientifically established (and policy pronouncements based on such theories) suggest that women may be biologically unqualified for certain jobs, either for physical reasons such as being too weak or cognitive reasons such as lack of math ability; these need to be critically examined and questioned. "Repeatedly, in the course of history, the pronouncements of scientists have been used to rationalise, justify, and naturalise dominant ideologies and the *status quo*. Slavery, colonialism, *laissez-faire* capitalism, communism, patriarchy, sexism and racism have all been supported at one time or another, by the work of scientists, a pattern that continues unabated into the present. ....In truth, scientists are no more protected from political and cultural influences than other citizens. By draping their scientific activities in claims of neutrality, detachment and objectivity, scientists augment the perceived importance of their views, absolve themselves of social responsibility for the applications of their work and leave their (unconscious) minds wide open to political and cultural assumptions" [Namenwirth, M, 1988:29].

In conclusion it would be pertinent to clarify that our objection to the term "women's issues" is in fact an objection to the sexual stratification implicit in its usage. We recognise, however, that issues specific/relating to women are part and parcel of the ideology and politics of gender and need to be recognised as such in order to challenge, among other things, the accuracy of binary distinctions between men and women.

Further it is not enough to merely state that issues such as reproduction are not just women's issues. This recognition then raises further questions about who should provide support facilities for individuals with young children and of what kind. And if it is agreed that the state has to provide child care, then the criteria by which children are to be socialised need to be determined.

At a different level, another set of issues thrown up by our analysis is that, in multistructural societies such as ours, while the oppression of women is real, oppression and its form vary across classes and fractions of classes and in the Indian context also between caste and religious groups. Consequently, policy documents that do not tackle the gender issue from this methodological standpoint degenerate into viewing sexual inequality as being due to merely the oppression of women by men. It is imperative that we start approaching gender questions also from the angle that all women do *not* necessarily share a common situation within society, a situation that is essentially uniform across different social classes, castes and religious groups.

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PADMINI SWAMINATHAN*

Development Experience(s) in India: Gendered Perspectives on Industrial Growth, Employment and Education

INTRODUCTION

The central conundrum for feminists when taking stock of the 'status of women' is whether the pursuit of economic development (particularly as it is currently practised in almost all third world countries) helps or harms women. More often than not, development does both; it 'helps' women in so far as the latter are able to find an income and an economic life outside of their patriarchal household structure; development 'harms' women when the latter are pushed back into the household from economic roles they had hitherto played outside. An assessment of the sum total impact of economic development on women must necessarily, among other things, situate the state in the development process. Almost all third world states have attempted to accelerate economic development through growth strategies which, however, exhibit substantial variation in content, form, degree of commitment across countries, instruments of implementation and over time.[1]

This paper is a modest attempt to assess to quality of state intervention in the Indian economy during the post independence period with particular emphasis on the impact that technological development (in industry) has had on industrial development and labour, women's labour in particular. Such an assessment would broadly involve an exploration into interconnected themes. Just as governmental statements of industrial policy have failed to incorporate labour as an important and integral component of the total process of restructuring of the economy, similarly it has proven extremely difficult to graft gender onto the existing planning process. For convenience of analysis we borrow a distinction made in literature[2] between strategic gender needs (interests) and practical gender needs (interests) to bring out the limited impact that government interventions (on behalf of and for women) have had; more important, the 'room for manoeuvrability' seems to be shrinking with the uncritical adoption of new policy approaches.

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Strategic gender needs are based on an analysis of women's subordination to men; deriving out of this is the strategic gender interest which seeks as an alternative, a more equal and satisfactory organization of society than that which exists at present, in terms of both the structure and nature of relationships between men and women.[3]

Practical gender needs are formulated from concrete conditions of women's experience: 'they do not generally entail a strategic goal such as women's emancipation or gender equality, nor do they challenge the prevailing forms of subordination even though they arise directly out of them.'[4] In planning terms, policies for meeting practical gender needs focus on the domestic arena, on income earning activities, and also on community level requirements of housing and basic services. This is based on the perception which makes women primarily responsible for domestic work involving child care, family health and food provision and also the community management of housing and basic services. This identification is done, more often than not, by women themselves, thereby preserving and reinforcing (even if unconsciously) the sexual division of labour.

It is our submission that, by and large, the 'women's question' in India has got reduced to and is now almost completely identified with meeting practical gender needs, particularly at the level of gender policy and planning. While individual writings on the subject uncover the ideological basis of the persistence of gender inequities, a content analysis of the state's plan documents, its periodic policy statements, the major documents brought out by the women's movement in India, show the dominance of practical gender needs over strategic gender interests both in the conception and in the transformation of these policies into programmes of action.[5]

The proliferation of NGOs and voluntary associations has, to a large extent, enabled the state to withdraw into the background and act more as a funding body; the NGOs and voluntary organisations, on the other hand, not only have a limited charter but are constrained to fulfil targets and/or show quick results if their sources of funding are not to run dry. Hence, meeting practical gender needs are becoming an end in themselves without any scope for transformation of these into strategic gender needs. Hence the feminist perspective and content of the women's movement has been considerably diffused if not lost altogether.

In such a milieu, the movement has had very little time and even less inclination to perceive the 'women's question' against macro processes at work in the economy. This reduction of the women's question to practical gender needs has had a very deleterious impact inasmuch as neither the planning process nor statements of particular policies deem it imperative to incorporate/integrate gender perspectives onto their main agenda. Whatever attempts have been made thus far have been of an add-on nature and hence have only a token value.[6]

In an attempt to place women's economic position within an overall context we focus our attention on the recent Industrial Policy Statement of the Government of India to bring out, among other things,

(i) the ineffectiveness of the state's intervention in the Indian economy and the increasing disjuncture that this has wrought on the different forms of production in the economy;
(ii) the parasitical existence and functioning of the organised private industrial sector (particularly the large family-based business houses) which have been under no great compulsion to innovate and/or compete on the international market, thereby imparting to the economy a structural rigidity from which the economy is unable to extricate itself and become really dynamic.
(iii) the impact, particularly on labour, consequent upon the attempts to send the economy on a global trip.

We focus next on the gendered pattern of development and the implications for gender of the policies being pursued in the economy in the name of 'equity' and 'efficiency'. That labour planning does not form part and parcel of any industrial policy is an important but neglected aspect of the story of employment in the country. Consequently the debate on the question, namely, whether or not the liberalization measures of the Indian government will increase or decrease the demand for labour, tends to get sterile and/or is carried on in a vacuous framework inasmuch as there is no real evaluation of the industrial performance of the country over the years. From a gender perspective there is need in the first place, to place the whole issue of the employment/unemployment/underemployment of women within the overall macro discussion of technology and labour. Further, without labouring the (by now well-known) fact of the extremely narrow base of women's employment as far as the organized sector is concerned, we focus our attention more on the education/skill level of even those (few) women workers designated as such by the Census. The issue being highlighted is the need to constantly strive for some parity between the drive to acquire state-of-the-art technology (to compete on an international level and scale) and the upgradation of knowledge and skill level among the population. The basic educational level of the labour force, and within this of women labour, is so abysmally low (as revealed by Census data), that even assuming the new measures throw up employment opportunities on a reasonably large scale, it is not clear how far the existing population with its present skill level will benefit. The problem gets compounded in the case of women, since here the question is not just of bridging the (literacy) gap between men and women, but also fighting patriarchal and class oppression that inhibits provision of a conducive atmosphere and access to women to acquire skills and high quality continuous training.

INDUSTRIAL GROWTH: A MACRO-PERSPECTIVE

> While government will continue to follow the policy of self-reliance there would be greater emphasis placed on building up our ability to pay imports through our own foreign exchange earnings. Government is also committed to development and utilisation of indigenous capabilities in technology and manufacturing as well as its upgradation to world standards.
>
> . . . There is a great need for promoting an industrial environment where the acquisition of technological capability receives priority. In the fast changing world of technology the relationship between the suppliers and users of technology must be a continuous one . . .
>
> With a view to injecting the desired level of technological dynamism in Indian industry, government will provide automatic approval for technology agreements related to high priority industries within specified parameters. Indian companies will be free to negotiate the terms of technology transfer with their foreign counterparts according to their own commercial judgement. The predictability and independence of action that this measure is providing [sic] to Indian industry will induce them to develop indigenous competence for the efficient absorption of foreign technology. Greater competitive pressure will also induce our industry to invest much more in research and development than they have been doing in the past.
>
> . . . Government will fully protect the interests of labour, enhance their welfare and equip them in all respects to deal with the inevitability of technological change. Government believes, that no small section of society can corner the gains of growth, leaving workers to bear its pains. Labour will be made an equal partner in progress and prosperity. . . Intensive training, skill development and upgradation programmes will be launched.

These are excerpts from the Government of India's Statement on Industrial Policy made on 24 July, 1991.[7] Yet almost two years after this declaration of intention there is very little discussion (and even less visibility) of the substantive impact of the policy. The fact that any attempt to operationalize the contents of the policy would require fundamental structural changes in the production-structure of the economy is not being openly and squarely faced; the debate on the other hand has degenerated into one of discussing the pros and cons of free trade versus protection. One disturbing, even negative, fallout of the ineffectiveness of state intervention (at times even harmful) has been that there is hardly any serious, informed debate on the quality of state intervention, particularly the difference this can make to an economy.

The proponents of a liberal technology import policy argue that liberalization measures are essential to raise the overall technological competence, productivity and output growth of Indian industry. It is

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>
> . . . Government will fully protect the interests of labour, enhance their welfare and equip them in all respects to deal with the inevitability of technological change. Government believes, that no small section of society can corner the gains of growth, leaving workers to bear its pains. Labour will be made an equal partner in progress and prosperity. . . Intensive training, skill development and upgradation programmes will be launched.

These are excerpts from the Government of India's Statement on Industrial Policy made on 24 July, 1991.[7] Yet almost two years after this declaration of intention there is very little discussion (and even less visibility) of the substantive impact of the policy. The fact that any attempt to operationalize the contents of the policy would require fundamental structural changes in the production-structure of the economy is not being openly and squarely faced; the debate on the other hand has degenerated into one of discussing the pros and cons of free trade versus protection. One disturbing, even negative, fallout of the ineffectiveness of state intervention (at times even harmful) has been that there is hardly any serious, informed debate on the quality of state intervention, particularly the difference this can make to an economy.

The proponents of a liberal technology import policy argue that liberalization measures are essential to raise the overall technological competence, productivity and output growth of Indian industry. It is

also claimed that the higher cost of collaboration in the form of outgo of resources would be more than compensated by gains in output growth and export. There is rhetoric in the logic no doubt. But the outcome may well turn out to be different.

Our submission is that a general policy of liberalization per se and/or a technology import policy per se cannot raise the technological dynamism or accelerate the growth rate in productivity and output of Indian industry. The transformation of an economy into a internationally competitive one (through a liberal technology policy) necessarily involves a number of stages, including fundamental changes in the organization of production—if the experience of the East Asian economies is to serve as some sort of a model.

Over the years the manner in which industrial growth in this country has been conceived and pursued has led industrialists to seek maximum benefits (profits) in the shortest possible time. The easiest manner of achieving this has been to tie-up with foreign manufactures, which also helps the domestic firm to dominate the market concerned in a situation of low volume demand thus leading to an overall situation of continued technological dependence. A survey of the available evidence indicates that the entire gamut of foreign technology agreements/ foreign licensing arrangements/ foreign investment approvals over the years has not made that impact on domestic technology absorption and innovative capacity and capability so fundamentally imperative to hold one's own in the international market.

Further, the first thing to note about the country going global is that while domestic economic concerns such as unemployment, inflation, nationalization/privatization will not go away, increasingly international and transnational political issues will tend to upstage them. Among the fundamental changes that have occurred in the world economy (elaborated in detail, among other, by Peter Drucker)[8] and of immense importance to the economy of the LDCs are:

(a) the fact that the primary product economy has been 'uncoupled' from the industrial economy. For all non-farm commodities (various products, minerals or metals) world demand is shrinking. The amount of raw material needed for a given unit of economic output has been dropping. In 1984, for every unit of industrial production Japan consumed only 60 per cent of the raw materials required for the same volume of industrial production in 1973, that is eleven years earlier;

(b) in the industrial economy itself, production has been delinked from employment. Restructuring of the production process has led to a progressive decline in blue collar employment.

An analysis of the manner in which labour is enmeshed with the industrial structure is crucial before contemplating restructuring of the production process. In the American system the rise of big business was

consequent upon the development of managerial hierarchies and scientific management (read Taylorism) which brought in collective bargaining and the welfare state. In Britain the existence of a powerful trade union movement, prior to the establishment of big business, limited the power of management to reorganize work according to the principles of mass production.

In Japan, however, the intense class struggle that took place was resolved by the establishment of welfare capitalism within the firm; by and large the company relinquished the right to fire workers in exchange for a company union and no resistance to organizational change.[9] The form of the resolution of the class struggle during the critical stages of the development of industrial capitalism has had a powerful effect both on the definition of manager and worker and on the terms of relation between the firms and the government. The occupational pinnacle for a blue-collar workers in America and Britain is foreman or front line supervisor, the ranks of management being closed. A career ladder for a worker in a Japanese factory, on the contrary, can progress from group leader to production supervisor upto production manager.[10]

The relevance of the above discussion to the Indian context lies in the following:-

(a) Technological dynamism implies restructuring of the production process to be effective which again demands that production processes be flexibly organized to adapt to changing technology.

(b) Flexible production processes mean changes in the quantity and quality of labour requirements; they are premised on a high degree of horizontal mobility of skilled labour.

(c) The fact that the component of labour making up organized sector employment in India is very small need not be laboured. Further all official data sources bring out the decline and/or stagnation in organized sector employment during the decade of the eighties (when economic growth, particularly industrial growth, has been relatively high as compared to the previous decades). This fact combined with the phenomenon of less labour requirement consequent upon (technological) restructuring of the production process cannot but lead to further retrenchment of labour.

(d) Hitherto, retrenchment from the 'organized' sector has always meant swelling the ranks of the 'informal'/unorganized' sector, with its attendant evils of low wages, no enforcement of protective legislation—in short, exploitation of the highest order. Neither does the state take care of the retrenched workers.

(e) Even the most powerful of the trade unions in the country work in a rather uncoordinated fashion. It has been noted elsewhere that for any given amount of union power, unemployment is

lower if unions and employers coordinate their wage bargaining either across industries or nationally. What works worst of all is strong but uncoordinated unions.[11]

(f) The historically defined antagonistic relationship that characterize Industry and Labour makes it difficult for the Indian industry to break with Taylorism. Under the changed economic environment this break is imperative in order to compete on the basis of superior products, higher quality, more reliable delivery times and shorter product development time. The potential for improving the conditions of work has not been systematically pursued by the trade union movement. For example, unions could seek greater job security for their members in exchange for an agreement to develop real production flexibility based on the skill-centred factory.

(g) That women workers make up less than ten per cent of organized sector employment is a well-known fact. The declining rate of employment in the organized sector and therefore the greater adverse impact of this on women workers is only one part of the story: what is more serious from our point of view (which we develop in the sections to follow) is the existing low skill level of the female population combined with a high rate of non-attendance of schools on the part of female children, particularly in the rural areas.

The most vital, at the same time, the most difficult factor in forging and maintaining linkages between different actors in the whole drama of industrial development is political will—which factor, in our view, has been instrumental to a large extent, in imparting to the East Asian economies a very high degree of integration, particularly as far as the industrial sector is concerned.[12]

In contrast, the Indian industrial sector presents a picture of a fractured production system. In other words, the multiplier and feedback effects which should be generated as part of the process of diffusion of technological capability and which should in turn form the basis for complex production-systems-link between firms of all sizes (with bonds of interdependence that are forged by flows of goods, services and information) have over the years and in the absence of a conscious policy of nurturing, got truncated leading to a considerable degree of dis-integration of the industrial system.

Inspite of this, a major assumption of the liberalization measures now being pursued in the country is the uniformity of forms of production across the country coupled with an absence of discussion (both theoretically and otherwise) of the differential impact of such measures on

(i) different segments of the population, even assuming uniformity of the form of production;

(ii) different segments of the population given the wide variety and hierarchical nature of the forms of production.

PERSPECTIVES ON EMPLOYMENT

To put the above discussion thus far in a nutshell, what the industrial development experience in India documents is an almost complete lack of coordination between government (read strategic planning), industry (read private sector) and labour (read trade unions). Carrying the argument and analysing the problem from a gender perspective brings out very starkly the fact that while women are very essential to the success of a nation's development effort, it does not necessarily follow that development improves conditions for women either practically and much less strategically. Our emphasis on women's status does not imply that development necessarily helps all men; the focus on women's status, however, is to draw attention to the persistence of (gender) inequities in development, stemming from not just inaccessibility (for women) to fields directly related to technology, education and employment, but also from ideologies that surround the acquisition of technical competence and the structural arrangement that reinforce stereotypes marking scientific fields and expertise as male.

To change gender stereotypes and widen opportunities we need to (a) understand sexual hierarchy as a combined product of culturally created social ideologies and the material conditions of women's and men's lives, and (b) appreciate the fact that sexual division of learning and work are not immutable behavioural specialisations to be justified as function or as vestiges of early human evolution. Rather, the school and the workplace are cultural and political environments where rules and norms are perpetuated and legitimated by contemporary ideologies of exclusion, segregation and avoidance.[13]

The data that we have assembled from several official sources document how remarkably resistant to change have been precisely those that need to be transformed. The data on employment and education of women in general and of women workers in particular also show how far removed from ground realities are our policy makers and planners. No assessment and/or estimate has been made of the labour (and kinds of labour) requirements of the new industrial liberalization measures. More serious, there is evaluation of the existing educational/skill level of the population in general and of labour in particular to even gauge how far this labour will be able to take advantage and/or even adapt to the emerging situation.

We begin with an overview of the position occupied by women as workers, using the standard Census definition of work; we then move on to a discussion of the educational level of the population, particularly of the working population. Sex-wise and age-wise data relating to child population and to scheduled castes and scheduled tribes point to

the multi-dimensional level of the problem that needs to be examined to understand why women are where they are in the conventionally defined work force of the Census.

Much detailed and painstaking work has gone into unravelling the 'statistical purdah' imposed by existing concepts and methods of measuring labour force participation to make visible the vital and productive work done by women particularly in the rural areas. The official 1981 Census shows only 16 per cent of the rural working-age female population as economically active (compared to 53 per cent for males). But more careful data collection procedures and more inclusive definitions of economic activity result in much higher female participation rates. For example, when women who work part-time or those whose main activity is collecting fuel fodder, or working in dairy, poultry or kitchen garden production for the family are added to those in the conventionally defined labour force, the female labour force participation rate rises to 51 per cent—only 13 percentage points below the male participation rate (Table 1).

Table 1

Rural Male and Female Labour Force Participation Rates
(By different data sources and definitions)

Data Source (Definition)	Male (%)	Female (%)
Census, 1981 (Main Workers)	53	16
NSS, 1983 (Main Workers)	61	29
NSS, 1983 (Main and Marginal Workers*)	63	39
NSS, 1983 (Main, Marginal and Code 93** Workers)	64	51

Note: *Marginal Workers are those who engaged in economically productive activities less than 183 days in the year.
**Code 93 activities include fuel, fodder and water collection and work in dairy, poultry or kitchen garden production for the family

Source: Bennett, Lynn 'Women, Poverty and Productivity in India', draft circulated to participants in joint World Bank–Planning Commission Workshop on Gender and Poverty in India, December 5–7, 1991, New Delhi (mimeo).

We do not wish to enter the debate on the visibility/ invisibility of women's work. Our main purpose, on the contrary, is to assess the quality of even this small portion of the population designated as workers by official data sources. This exercise is not only to highlight the fact the country invests far less in its women workers than in its working men, but more important, to bring out the complete dissociation between the assumptions and expectations of the new economic policies (namely rapid economic growth, particularly industrial growth and consequent beneficial impact on the population), and the actual ground

realities (given the existing level of literacy, level of skill and employment composition of the population).

Tables 2 and 3 give an idea of the

(i) composition of (main) workers sex-wise and activity-wise within each social group;
(ii) composition of (main) workers, sex-wise and group-wise within each activity.

The sectoral break-up of occupation reveals that women make up a substantial portion of the agricultural workforce in India. Agriculture accounts for 37 per cent of India's GNP and employs about 70 per cent of the working population of the country and almost 84 per cent of all economically active women. Although almost all rural women are involved to some extent in agriculture, the nature and extent of their involvement varies widely and is strongly influenced by economic status and the caste and ethnic background of their household.

Female labour force participation rates are noticeably higher among scheduled caste and scheduled tribe population than among the rest of the female population. Further, scheduled caste and tribal women account for nearly half of all the female agricultural labourers, although they make up only about a quarter of India's rural female population.[14]

A feature particularly notable for the decade 1971–1981 is the increase in the ranks of female child labour, especially when at the same time, the incidence of male child labour had gone down in rural areas (Table 4). Analysing the trends in women's employment for the decade 1971–81, Banerjee has shown, among other things, that the number of girl workers in both rural and urban areas had increased faster in states where the workforce participation rates of women had gone up faster; further a small part of the increase in female agricultural workforce was accounted for by rural child workers for whom most of the increase in absolute numbers as well as in the proportion was concentrated in agriculture.[15] Composition of the workforce by sex and activity according to the 1991 census is now available and shows an increase in workforce participation rate for women between 1981 and 1991 (Table 5). However, unless and until an age-wise classification of the composition of workforce is made available it would be premature to gloat over the increased participation rates for women.

Growth in women's share of employment in industries and services in India has lagged behind not only that in the South East Asian countries, but (except for Nepal) even behind the other South Asian countries. Moreover, India is one of the the few countries where women's share of employment in the more modern sectors has actually decreased as growth in female agricultural employment outplaced female job creation in the remainder of the economy.[16]

Between 1911 and 1961 the ratio of female workers to male workers in manufacturing declined from 489 to 225 per 1000. During this period, only four industries—food, beverages and tobacco; textiles; wood and wood products; and ceramics—accounted for over 90 per cent of women's employment in manufacturing.[17] However, while data relating to the 1971–81 decade suggest that this declining trend may have been reversed, official data giving average daily employment in factories submitting returns indicate (Table 6):

(i) a declining trend in employment for adult women during the decade of the eighties,
(ii) an increase in employment of adolescent girls,
(iii) an increase in employment of girl children.

Further, two notable developments that have taken place during the period (1971–81) include,

(i) a 5 per cent drop in the combined share of four industries that traditionally accounted for 90 per cent of women's employment in manufacturing;
(ii) the emergence of some new industries in the chemicals, metallurgical and engineering group as important employers of women.[18]

This seemingly positive sign needs, however, to be interpreted with caution. Industrial classification data amalgamate workers employed in firms varying widely in size, technology levels and employment conditions. Women tend to be concentrated in those parts of the production process and in those units (often in rural areas) that use labour-intensive techniques which are often indistinguishable from women's traditional home tasks.

The percentage of all women (and all men) working in the various types of labour relations by type of industry is indicated both in the Census and the NSS data. These data show generally that:

(a) women are concentrated at the 'casual' end of the continuum in terms of labour relations, with family relationships predominating;
(b) women have less opportunities than men for becoming producers in their own right—fewer women than men are single worker or employers, and,
(c) women are more heavily represented in household production than in non-household production.

A Labour Bureau study of the socio-economic conditions of women workers in the 'Manufacture of Chemical and Chemical Products' and 'Food Products (except tea, coffee and sugar) Industries' carried out during the period March to June 1983, concretely explicates some of the

period 1950–81 revealed that women's employment in the two industries covered by the Labour Bureau study had witnessed an almost steady increase. A comparative study of the distribution of men and women workers by level of skill and broad occupational groups was made in the course of the study. For this purpose, men and women workers employed in the sampled factories were classified into the following occupational groups:

(i) Professional, Technical and Related Personnel
(ii) Administrative, Executive and Managerial Personnel
(iii) Clerical and Related Workers
(iv) Production and Related Workers (including supervisory)
(v) Watch and Ward and other staff

Production and related workers were further classified into supervisory, skilled, semi-skilled and unskilled categories. Based on the above classifications, the percentage of men and women workers in different occupational groups is reproduced in Table 7. This table clearly brings out the placement of women workers in the job hierarchy. More than 90 per cent of the women workers in these two groups of industries were unskilled workers. The position regarding the employment of women in professional, technical, administrative , executive, managerial and supervisory jobs was also found to be highly unsatisfactory.

PERSPECTIVES ON EDUCATION

The dominance of technology today and it's direct relationship to formal education has sharpened the significance of the debates surrounding the inequities in women's educational access and achievement on the one hand, and on the other by the structure and ideology of science and knowledge in general—the latter being currently shaped by the priorities of the production system rather than by wider social needs.

In what follows we have put together data from the Census indicating the educational level of the population in general and of women and girl children in particular to bring out the continuing gaps in school attendance, achievement and literacy between men and women.

Tables 8, 9 and 10 give an idea of the markedly higher rates of illiteracy among women in general (75 per cent) which gets more pronounced in the case of scheduled caste (90 per cent) and scheduled tribe (92 per cent) women. By breaking-up the literate population to get an idea of the levels of education, we find that those women who have managed to go beyond Higher Secondary and/or obtain a Graduate Degree, form less than one per cent each of the total female population. In the case of scheduled caste and scheduled tribe women, hardly one per cent go beyond even secondary school (Table 8.)

The educational level of the (main) workers of the population is even more dismal. While almost 50 per cent of male main workers are illiterate, in the case of women (main) workers, illiteracy is almost 85 per cent. Since a majority of the women workers are concentrated in the agricultural sector, either as cultivators and/or as agricultural labourers, we have provided details regarding their educational level. Almost 88 per cent of women cultivators and about 92 per cent of women agricultural laborers are illiterate, as against 59 per cent and 75 per cent respectively for men (details in Table 9).

Table 10 details the educational level of the urban population in general and urban main workers in particular. (We need not labour the fact of the urban population having better access to educational and other infrastructural facilities vis-a-vis the rural areas.) It needs to be pointed out that only 23 per cent of the total female population live in urban areas of which only 12 per cent constitute main workers as per the Census. 52 per cent of the total urban female population and almost 57 per cent of urban female main workers are illiterate. The Census also provides (for the urban population only) the technical degrees/diplomas obtained by urban population by industrial classification. Needless to add, data show that the skill level of urban females and of urban female main workers to be abysmally low except in the field of teaching.

Table 11–15 provide details of the school attendance and levels of education of children by sex, residence and activity. They bring out quite starkly that:

(a) (i) almost 65 per cent of female children (both rural and urban) in the age group 5–14 years do not attend school;
(ii) this figure of non-attendance at school increases to 73 per cent for female rural children when broken down by residence.
(b) Almost 94 per cent of female child workers (age 5–14 years) do not attend school;
(c) Even among those female children not working, only 37 per cent attend school;
(d) In the case of scheduled caste female children, almost 85 per cent in the age-group 5–9 years and about 74 per cent in the age-group 10–14 years are illiterate. For scheduled tribe female children the figures for the respective age groups are 89 per cent and 82 per cent.

This then is the the educational quality of the population in general and of women and female children in particular as depicted by official data sources. It is clear that rates of illiteracy and gender difference in educational level are greatest in the rural and particularly among scheduled caste and scheduled tribe women. The findings have important implications for development policy and particularly so in the current phase of the opening up of the economy where the emphasis is on the importation of sophisticated technology to make the economy internationally competitive. Unless we have special programmes focussed on female children and women, gender disparities may not just persist but may even become greater given that there is an increasing incidence of female children joining the ranks of workers and not attending school. The pursuance of sex and class-neutral policies without addressing/correcting initial imbalances cannot but exacerbate existing inequities. To quote Elliott and Kelly:

> It is difficult to equalize opportunity once some groups have established an initial lead, and even more so with current constraints on increasing educational investment and government employment. After actively discriminatory policies have set inequalities in motion, sex-neutral policies are sufficient to maintain established patterns. Thus the educational gap continues, as does the clustering of women in low-paid service occupations.[20]

Moreover, there are two further problems that have to be contended with: one, literacy and the completion of some basic education no longer guarantees a place in the labour force as in the past. As large numbers of students complete primary school, employers begin to require still higher levels of attainment for the same jobs. 'This points to an important function of educational systems: they can be used as flexible sorters of the national labour force responding to changing national and international market conditions.'[21] Micro-level studies have revealed that this sorting affects women more adversely. In a study of women's labour in the textile industry of Coimbatore, Tamil Nadu, Baud has shown how mill management has drastically changed recruitment procedures by setting up a series of requirements: 'Workers must be educated up to the tenth standard, be 18–21 years old, and have a certain weight and height. The result is that women are excluded from recruitment in 34 per cent of the mills currently.'[22]

Two, our data show that except in the case of the teaching profession, the percentage of female population going in for technical education is negligible. Questions of accessibility will have to be complemented by research in institutional arrangements and social ideologies to explain how systems perpetuate the status quo and how they might be transformed.

CONCLUDING OBSERVATIONS

Among the issues thrown up by our paper we would like to highlight the following:

The educational level of the (main) workers of the population is even more dismal. While almost 50 per cent of male main workers are illiterate, in the case of women (main) workers, illiteracy is almost 85 per cent. Since a majority of the women workers are concentrated in the agricultural sector, either as cultivators and/or as agricultural labourers, we have provided details regarding their educational level. Almost 88 per cent of women cultivators and about 92 per cent of women agricultural laborers are illiterate, as against 59 per cent and 75 per cent respectively for men (details in Table 9).

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Moreover, there are two further problems that have to be contended with: one, literacy and the completion of some basic education no longer guarantees a place in the labour force as in the past. As large numbers of students complete primary school, employers begin to require still higher levels of attainment for the same jobs. 'This points to an important function of educational systems: they can be used as flexible sorters of the national labour force responding to changing national and international market conditions.'[21] Micro-level studies have revealed that this sorting affects women more adversely. In a study of women's labour in the textile industry of Coimbatore, Tamil Nadu, Baud has shown how mill management has drastically changed recruitment procedures by setting up a series of requirements: 'Workers must be educated up to the tenth standard, be 18–21 years old, and have a certain weight and height. The result is that women are excluded from recruitment in 34 per cent of the mills currently.'[22]

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CONCLUDING OBSERVATIONS

Among the issues thrown up by our paper we would like to highlight the following:

(a) The dismal performance of Indian organised industry is only partly due to bureaucratic rules and regulations and largely stems from an inflexible production structure that is unable to adapt rapidly to changing global and domestic environments.

(b) The quality of state intervention in the economy has been so poor that it has not been able to compel the private sector to deliver the goods despite vast resources having been made available to this sector. While much ink and paper, and public and Parliament time, has been used in denouncing the public sector, hardly any evaluation worth the name exists of the performance of the private sector.

(c) There is not even a conceptual realization that imparting dynamism to the industrial sector ipso facto implies that a labour policy be made an integral part of the industrial policy.

(d) Whether or not the new policies will generate employment is only one aspect of the problem (for which again there has to be a comprehensive evaluation of the components of the policy); more important in our view is the existing pattern of employment and the quality of this employed/employable population in terms of its skill and educational achievements.

(e) Macro discussions of policy and government decisions to intervene in the economy assume a level of neutrality as far as the impact of their decisions are concerned and/or assume that disadvantaged sections of the population—women, scheduled castes and tribes—can be helped to overcome their disadvantage though 'appropriate' actions/policies. How 'inappropriate' these interventions have been, particularly in the case of women, has been clearly indicated in the data we have assembled on employment and education.

That there is need for intervention is not being questioned; the intervention required however is of a quality and intensity not hitherto attempted in the country precisely because of the absence of that political will which can command authority and demand performance. The only alternative under such circumstances is a combination of continuous struggle from below and laying bare of the machinations of the state-business-bureaucratic nexus. There is of late an increasing awareness and reporting of the kinds of problems facing the country which a liberalization policy per se far from solving will only exacerbate given the existing distortions in the economy. We would like to refer, in conclusion, to two of these issues which have to do with our educational system.

First, The overemphasis of higher education in third world countries, almost all of it at public expense, and before attaining universal or near universal primary education has left the initial imbalance between different classes/sections of the population, and particularly between men and women unaddressed. Blaug finds this phenomenon to be a complete reversal of the pattern that obtained in some of the prominent advanced countries that were underdeveloped 50 or 60 years ago, particularly Japan and the former Soviet Union.[23] The expansion of education in these countries was marked by a deliberate policy of attaining universal or nearly universal primary education before expanding secondary and higher education. Further, to quote Blaug,

> Not only has third-level education been the fastest growing level of education in Africa, Asia and Latin America since 1950, but the spread of unit costs between the first and third level of education varies from 1:2 in America and Europe to 1:50 in most of Latin America to 1:100 in Sub-Saharan Africa; in short, in most of the Third World, one higher education student costs as much as 50 to 100 primary education students. So whatever the complex nature of the world financial crises in education, the nub of the problem in the Third World is clearly the enormous expense of university education, which, paradoxically, falls almost wholly on the public purse.[24]

India is among those countries which has allowed heavy public subsidization of higher education, while allowing vast sections of its population, particularly women, and, scheduled castes and tribes, to languish for want of a primary education.

A second set of issues which is not being taken note of in a serious manner is the obsolescence and stagnation of technology education in the country. An impression being created is that the most important issue is the provision of sufficient financial resources, laboratory buildings, classroom equipment and associated facilities. While these kinds of hardware and building facilities are no doubt necessary conditions, they are not, as a former director of IIT, Madras, put it, the critical issues.[25] To quote the director,

> The main issues are concerned with the curriculum, subject contents, teaching of design methodologies, problem-solving approaches, as also exposure to industrial and manufacturing processes, which make technical education distinctively different from others. About 30–35 years ago, when technology was not as complex as it is today and the amount of material that one had to study in engineering institutions was quite limited, the type of educational training provided had a degree of completeness in the sense that a person soon after graduation could take up a job and fit well into the stream of activities . . . In spite of its tremendous importance in engineering education, however, as the curriculum underwent changes every few years, *design-oriented courses soon found their way out, and today engineering education has become a second-rate science resembling an*

applied physics course, and completely devoid of its characteristic features and identity . . . Two agencies that could have come forward and asserted themselves were the Indian industries, and engineering professionals' societies. Both these agencies have been silent spectators of the gradual deterioration of technical education. The industries, which are user agencies of trained technical manpower, have also remained aloof [emphasis added].[26]

This, as we see it, is part of a larger problem of what Deyo calls the 'political economy of social policy formation'. Examining the social policy differences among the East Asian NICs, Deyo argues that, East Asian social policy (particularly government role in education and wage determination) has been driven primarily by the requirements and outcomes of economic development policy, unlike the situation in Latin America, where extra-bureaucratic political pressures have played a more prominent role in shaping social policy.[27]

In the zeal to liberalize the economy and make it market oriented it is sought to confine the role of the government in India to the minimum by making it responsible for social infrastructure. The point not being realized is that even this minimum intervention, if it has to be effective, has to be more explicitly and directly linked to a well-conceived economic growth.

Table 2

Composition of Main Workers by Sex and Activity *within* each Social Group

Activity of Main Workers	Total (For All India)		Scheduled Castes		Scheduled Tribes	
	Males	Females	Males	Females	Males	Females
I. Total Main Workers of which	177543406 (100.00)	44973168 (100.00)	28515377 (100.00)	9329191 (100.00)	14753619 (100.00)	7210069 (100.00)
(i) Cultivators	77590670 (43.70)	14932165 (33.20)	9157641 (32.11)	1503487 (16.12)	8792565 (59.60)	3162200 (43.86)
(ii) Agric Labourers	34731846 (19.56)	20767858 (46.18)	11905029 (41.75)	6344331 (68.00)	3846309 (26.07)	3328589 (46.17)
(iii) Household Industry [V (a)]	5647080 (3.18)	2063890 (4.59)	913777 (3.20)	338725 (3.63)	185717 (1.26)	126148 (1.75)
(iv) Other Workers (III, IV, V(b) and VI to IX)	59573861 (33.56)	7209254 (16.03)	6538930 (22.93)	1142648 (12.25)	1929028 (13.07)	593132 (8.23)

Note: Figures within brackets indicate percentages to totals.
Source: Same as Table 1 and
Census of India 1981—Series I, India, Part II-B, Primary Census Abstract Scheduled Castes
Census of India 1981—Series I, India, Part II-B (iii) Primary Census Abstract Scheduled Tribes.

Table 3

Composition of Main Workers by Sex and Social Group *within* each Activity

	Total Main workers		Cultivators		Agric Labourers		Household Ind		Other workers	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
All Social Groups	177543406	44973168	77590670	14932165	34731846	20767858	5647080	2063890	59573861	7209254
of which:										
Scheduled Castes	28515377 (16.06)	9329191 (20.74)	9157641 (11.80)	1503487 (10.07)	11905029 (34.28)	6344331 (30.55)	913777 (16.18)	338725 (16.41)	6538930 (10.98)	1142648 (15.85)
Scheduled Tribes	14753619 (8.31)	7210069 (16.03)	8792565 (11.33)	3162200 (21.18)	3846309 (11.07)	3328589 (16.03)	185717 (3.29)	126148 (6.11)	1929028 (13.24)	593132 (8.23)

Note: Figures within brackets indicate percentages to totals.
Source: Census of India - 1981 Series I India, Part III-A (i) General Economic Tables
Census of India - 1981 Series I India Part III-A (ii) General Economic Tables

Table 4

Child Workers in India (below 14 years of age): by Industrial Category and Sex (*Percentage Change* between 1971 and 1981)

		Percentage change between 1971 and 1981 in					
		Total Child Population (Rural + Urban)		Rural		Urban	
		Males	Females	Males	Females	Males	Females
Total Child Pop. of which		+14.21	+14.33	+9.58	+9.48	+34.57	+35.78
Total Child Main Workers of which		-5.7	+31.7	-8.0	+30.5	+21.7	+50.5
(i)	Cultivators	-7.1	+46.8	-7.4	+46.6	+20.0	+81.2
(ii)	Agric. Labourers	-6.7	+25.5	-7.6	+24.8	+25.6	+55.9
(iii)	Livestock, Forestry, Fishing, Hunting, etc.	-22.9	+0.9	-23.5	+0.9	-7.1	+2.7
(iv)	Mining & Quarrying	-8.1	+15.3	-6.7	+20.2	-15.1	-11.1
(v)	(a) Household Industry	+17.6	+42.8	+16.73	+41.68	+20.4	+46.9
	(b) Other than Household Industry	+64.7	+98.5	+65.3	+94.6	+51.9	+105.7
(vi)	Construction	+28.6	+78.8	+23.9	+105.7	+35.1	+30.2
(vii)	Trade and commerce	+15.8	+49.0	+13.5	+51.4	+17.1	+44.7
(viii)	Transport, storage and communication	-9.0	-47.7	-4.9	-33.3	-10.7	-57.9
(ix)	Other Services	-29.1	-2.2	-42.5	-24.1	-4.6	+31.9

Source: Computed from:
1. Census of India 1971, Series–I, India, Paper 3 of 1972, Economic Characteristics of Population (Selected Tables) B–I, Part A
2. Census of India, 1981, Series–I India, Part III–A(i), General Economic Tables B–3, p. 240–43.

Table 5

Composition of Workers—by Sex and Activity (1981 and 1991)

		1981		1991	
		Males	Females	Males	Females
Total Population		343930423	321357426	433791705	402513817
Total Workers (Main + Marginal)		181080212	63524774	223506153	91397439
(Workers as % of total population)		(52.65)	(19.77)	(51.52)	(22.69)
of which					
(i)	Marginal	3536806	18551606	4272674	25208055
	(as % of total workers)	(1.95)	(29.20)	(1.91)	(27.58)
(ii)	Main	177543406	44973168	219233479	66189434
	(as % of total workers)	(98.05)	(70.80)	(98.09)	(72.42)
Composition of Main Workers					
(i)	Cultivators	77390670	14932165	87717381	22871441
	(as % of Main Workers)	(43.70)	(33.20)	(40.00)	(34.55)
(ii)	Agric. Labourers	34731816	20767858	45815830	25833367
	(as % of Main Workers)	(19.56)	(46.18)	(20.90)	(43.56)
(iii)	Household Ind. Workers	5647030	2063890	7310270	3062529
	(as % of Main Workers)	(3.18)	(4.59)	(3.33)	(4.63)
(iv)	Other Workers	59573861	7209254	78389998	11421777
	(as % of Main Workers)	(33.56)	(16.03)	(35.77)	(17.26)

Source: For 1981: Same as Table 2
For 1991: Census of India–1991, Series–I, India (Paper 3 of 1991) Provisional Population Totals: Workers and their Distribution

Table 6

Average Daily Employment in Factories Submitting Returns: by broad Age-Groups and Sex (1951–1985)

Year	Adults Males	Adults Females	Adolescents Males	Adolescents Females	Children Males	Children Females	All Groups Males	All Groups Females	Grand Total
1951	2217336	283884	18561	4366	5152	1738	2241249	[illegible]	25365[illegible]
	(87.61)	(11.22)	(0.73)	(0.17)	(0.20)	(0.07)	(88.36)	(11.43)	(100.00)
1956	2566463	294809	11393	5334	3057	1253	2580913	30139[illegible]	2882309
	(89.04)	(10.23)	(0.40)	(0.18)	(0.11)	(0.04)	(89.54)	(10.46)	(100.00)
1961	3115014	368052	7234	3841	2405	441	3124653	372334	3496987
	(89.08)	(10.52)	(0.21)	(0.11)	(0.07)	(0.01)	(89.35)	(10.65)	(100.00)
1966	3695511	362468	6[illegible]	[illegible]	[illegible]739	918	3704227	364654	4068881
	(90.83)	(8.91)	(0.17)	(0.03)	(0.04)	(0.02)	(91.04)	(8.96)	(100.00)
1969	3749337	379253	3650	2703	1518	324	3754505	382280	4136785
	(90.63)	(9.17)	(0.09)	(0.06)	(0.04)	(0.01)	(90.76)	(9.24)	(100.00)
1974	4187272	429773	4279	7566	1519	2791	4193070	440130	4633200
	(90.38)	(9.28)	(0.09)	(0.16)	(0.03)	(0.06)	(90.50)	(9.50)	(100.00)
1978	4498891	488141	4103	4479	2029	2310	4505023	494930	4999953
	(89.98)	(9.76)	(0.08)	(0.09)	(0.04)	(0.05)	(90.10)	(9.90)	(100.00)
1979	4622046	506953	39[illegible]1	4831	1858	1940	4627855	513724	5141599
	(8[illegible].90)	(9.86)	(0.08)	(0.0[illegible])	(0.04)	(0.04)	(90.01)	(9.99)	(100.00)
1980(p)	46[illegible] 761	491989	3502	490[illegible]	1555	2738	4650818	499635	5150453
	(9[illegible].20)	(9.55)	(0.07)	(0.10)	(0.03)	(0.05)	(90.30)	(9.70)	(100.00)
1981(p)	4826212	491842	5822	3287	1997	2716	4834061	497845	5331906
	(90.52)	(9.22)	(0.11)	(0.06)	(0.04)	(0.05)	(90.66)	(9.31)	(100.00)
1982(p)	4803372	524236	5023	2638	1820	4948	4810215	531832	5342047
	(89.92)	(9.81)	(0.09)	(0.05)	(0.03)	(0.09)	(90.04)	(9.96)	(100.00)
1983(p)	4663838	476745	4994	5958	1148	2327	4689980	484030	5175010
	(90.51)	(9.21)	(0.10)	(0.12)	(0.02)	(0.04)	(90.60)	(9.40)	(100.00)
1984(p)	4713042	482613	3087	7208	1517	3343	4719646	493164	5212810
	(90.45)	(9.26)	(0.06)	(0.14)	(0.03)	(0.06)	(90.54)	(9.46)	(100.00)
1985(p)	4638839	474748	3797	5509	2181	3792	4644817	484049	5128866
	(90.45)	(9.26)	(0.07)	(0.11)	(0.04)	(0.07)	(90.56)	(9.44)	(100.00)

Note: 1. p = Provisional
2. Figures within brackets indicate percentage to row totals
3. Sex wise break-up of 5307 workers not available, hence included only in the final total.

Source: 1. For data upto 1979 —See Table 4.25 of *Child in India. A Statistical Profile* Govt. of India, Ministry of Welfare, New Delhi, 1985, p. 473.
2. For data between 1980 and 1985, see Table 2.2. of *Statistical Profile of Women Labour* (third Issue), Govt. of India, Ministry of Labour, Chandigarh, 1990, p. 11.

Table 7

Percentage distribution of Men and Women Workers by broad Occupational Groups (in the sampled factories) (as on 31.12.1982)

Industrial Category	Total Employees in the sampled factories: Men	Women	Total	Professional Technical and Related Personnel: Men	Women	Administrative Executive and Managerial Personnel: Men	Women	Clerical and Related Workers: Men	Women	Supervisors: Men	Women	Production and Related Workers — Skilled: Men	Women	Semi-skilled: Men	Women	Unskilled: Men	Women	Others: Men	Women
I Food Products																			
1 Canning & Preservation of Fruits, Veg & Fish	100.0 (578)	100.0 (342)	920	2.4 (14)	0.3 (1)	2.9 (17)	0.3 (1)	5.4 (3)	1.5 (5)	5.2 (30)	- -	2.1 (12)	0.3 (1)	5.4 (31)	- -	68.5 (396)	97.3 (333)	8.1 (47)	0.3 (1)
2 Rice and Dal Mills	100.0 (1206)	100.0 (755)	1961	0.1 (1)	-	3.4 (41)	- -	8.8 (106)	- -	1.4 (17)	-	6.0 (72)	-	6.0 (72)	-	69.8 (842)	100.0 (755)	4.5 (55)	-
3 Cashewnut Processing	100.0 (467)	100.0 (8107)	8574	- -	- -	5.6 (26)	- -	12.8 (60)	neg (1)	20.8 (97)	neg (1)	0.4 (2)	- -	- -	- -	51.5 (241)	99.9 (8096)	8.8 (41)	0.1 (9)
4 Mfe of Common Salt, Edible Oils and fats	100.0 (2092)	100.0 (1085)	3177	1.3 (26)	0.2 (2)	1.0 (21)	- -	5.5 (115)	0.3 (3)	1.6 (34)	- -	5.0 (105)	- -	4.3 (90)	- -	71.3 (1492)	97.6 (1059)	10.0 (209)	1.9 (21)
5 Mfe of Sago and Sago products	100.0 (300)	100.0 ([illegible])	731	3.0 (9)	- -	2.6 (8)	0.3 (1)	7.3 (22)	0.2 (1)	5.7 (17)	0.2 (1)	4.7 (14)	- -	5.0 (15)	- -	64.7 (194)	98.6 (425)	7.0 (21)	0.7 (3)

(Contd.)

Table 7 (contd.)

Industrial Category	Total Employees in the sampled factories			Professional Technical and Related Personnel		Administrative Executive and Managerial Personnel		Clerical and Related Workers		Supervisors		Production and Related Workers							
												Skilled		Semi-skilled		Unskilled		Others	
	Men	Women	Total	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
11 Chemicals & Chem. Products																			
1 Mfr. of Fertilizers & Medicines	100.0 (5908)	100.0 (770)	3670	10.5 (606)	2.5 (19)	3.0 (167)	-	14.7 (425)	3.4 (26)	4.7 (136)	0.9 (7)	9.5 (274)	- (-)	5.4 (157)	- (-)	46.0 (1336)	9.10 (701)	6.2 (181)	2.2 (17)
2 Mfr. of Washing Soap, Inedible oils, Perfumes, Lotions, Hair Oils etc.	100.0 (2869)	100.0 (1100)	3969	4.4 (126)	2.2 (24)	4.0 (115)	0.2 (2)	11.5 (329)	4.2 (46)	6.7 (192)	0.2 (2)	15.6 (447)	- (-)	2.9 (83)	- (-)	41.8 (1200)	92.9 (1022)	13.1 (375)	0.3 (4)
3 Mfr. of Matches and Fire Works	100.0 (692)	100.0 (1536)	2228	0.3 (2)	- (-)	2.5 (17)	- (-)	7.9 (55)	- (-)	6.3 (44)	- (-)	0.3 (2)	- (-)	1.9 (13)	- (-)	76.2 (577)	99.5 (1528)	4.6 (32)	0.5 (8)

Note: Absolute figures are given in brackets

Source: Govt. of India, Labour Bureau, *Socio-Economic Conditions of Women Workers in Manufacture of Chemicals and Chemical Products and Food Products Industries*, Ministry of Labour, Shimla, 1986, Table 2.5, p. 18

Table 8

Educational Level of the Indian Population —By Sex and Social Group (1981)

Levels of Education	Total Population		Scheduled Caste		Scheduled Tribe	
	Male	Female	Male	Female	Male	Female
Total Population	343930423 (100.00)	321357426 (100.00)	53489079 (100.00)	49811647 (100.00)	26007967 (100.00)	25558913 (100.00)
Literate (without Ed. level)	49644471 (14.43)	27763144 (8.64)	6629599 (12.40)	2514730 (5.05)	3099015 (11.92)	1103147 (4.32)
Primary	46770288 (13.60)	26077285 (8.11)	5220109 (9.76)	1764630 (3.54)	1781300 (6.85)	539248 (2.11)
Middle	28860862 (8.39)	13340557 (4.15)	2600601 (4.86)	716843 (1.44)	899952 (3.46)	260962 (1.02)
Matric/Secondary	20385734 (5.93)	7510275 (2.34)	1314812 (2.46)	274543 (0.56)	401324 (1.54)	100052 (0.39)
Higher Sec/Inter	7425067 (2.16)	2395980 (0.75)	451944 (0.84)	63216 (0.13)	107081 (0.41)	22223 (0.10)
Non-technical diploma not equivalent to degree	108960 (0.03)	67196 (0.02)	4176 (0.01)	1380 (neg.)	976 (neg)	236 (neg)
Technical diploma or certificate not equivalent to degree	1052525 (0.31)	273952 (0.09)	50201 (0.09)	11465 (0.02)	14421 (0.06)	3696 (0.01)
Graduate degree and above	7037661 (2.05)	2317891 (0.72)	278361 (0.52)	32178 (0.06)	63769 (0.24)	13560 (0.05)
Per cent Literate	46.9	24.82	30.94	10.80	24.48	8.00
Per cent Illiterate	53.1	75.18	69.06	89.20	75.52	92.00

Note: Figures within brackets indicate percentages to totals.

Source:
1. Census of India—1981, Series 1 India, Part II-A (i), General Economic Tables
2. Census of India —1981, Series 1 India, Part IV-A (i), Social and Cultural Tables (Scheduled Castes)
3. Census of India —1981, Series 1 India, Part IV-A (iv) Social and Cultural Tables (Scheduled Tribes)

Table 9

Educational Level of (Main) Workers: 1981

Levels of Education	Total Main Workers		Cultivators		Agricultural Labourers	
	Males	Females	Males	Females	Males	Females
Total	177543406 (100.00)	44973168 (100.00)	77590670 (100.00)	14932165 (100.00)	34731846 (100.00)	20767858 (100.00)
Illiterate	89890879 (50.63)	38027466 (84.56)	45340410 (58.44)	13172842 (88.22)	25931182 (74.66)	19176447 (92.34)
Literate (all levels)	87652527 (49.37)	6945702 (15.44)	32250260 (41.56)	1759323 (11.78)	8800664 (25.34)	1591411 (7.66)
Literate without Ed. level	19563591 (11.02)	1851592 (4.12)	9454068 (12.18)	646077 (4.33)	3344473 (9.63)	657252 (3.16)
Primary	2742359 (15.45)	2290354 (5.09)	11922999 (15.37)	790154 (5.29)	3636287 (10.47)	732378 (3.53)
Middle	16736611 (9.43)	851786 (1.89)	6417865 (8.27)	250303 (1.68)	1299923 (3.74)	171212 (0.82)
Matriculation/ Secondary	13666459 (7.70)	849437 (1.89)	3282389 (4.23)	62417 (0.42)	437985 (1.26)	28308 (0.14)
Higher Sec/ Inter/Pre-Univ.	4057226 (2.29)	222341 (0.49)	797852 (1.03)	6921 (0.05)	60334 (0.17)	1738 (0.01)
Non-technical diploma not equivalent to degree	80132 (0.05)	28024 (0.06)	11759 (0.02)	246 (neg)	1919 (0.01)	110 (neg)
Technical diploma not equivalent to degree	824398 (0.46)	178617 (0.40)	32721 (0.04)	299 (neg)	4307 (0.01)	317 (neg)
Graduate and above	5300520 (2.98)	674049 (1.50)	330607 (0.43)	2527 (0.02)	15418 (0.04)	364 (neg)

Note: Figures within brackets indicate percentages to totals.

Source: Census of India—1981 Series 1 India, Part III-A (i) General Economic Tables
Census of India —1981, Series 1 India, Part III-A (ii) General Economic Tables

Table 10

Urban Population and Workers Classified by Industrial Category, Educational Level and Sex

(Percentage Distribution) (1981)

Educational Levels	Total Urban Population		Main Workers (Urban)	
	Males	Females	Males	Females
Total	83876403	73803768	40712501	5370183
Urban population and % of total (Rural + Urban)	24.39	22.97	22.93	11.94
Illiterate	34.17	52.18	27.10	57.03
Literate (without Ed. Level)	14.40	12.87	8.87	5.27
Primary	15.71	13.68	17.18	7.51
Middle	12.34	9.05	14.23	4.49
Matric/Sec	11.84	6.73	16.59	9.84
Higher Sec/Inter/Pre Univ	5.00	2.52	5.56	3.14
Non-technical diploma not equivalent to degree	0.04	0.05	0.06	0.27
Technical diploma not equivalent to degree	0.70	0.20	1.12	1.73
Grad. Degree other than technical	3.90	1.81	5.95	5.16
Post-Grad degree other than technical	1.0	0.50	1.68	2.30
Tech. degree/diploma = deg or Post-grad				
(i) Eng. & Technology	0.04	0.01	0.71	0.06
(ii) Medicine	0.21	0.07	0.36	0.67
(iii) Agri & dairying	0.03	0.05	0.01	0.02
(iv) Veterinary	0.01	neg	0.02	neg
(v) Teaching	0.28	0.32	0.51	2.52
(vi) others	neg	neg	neg	neg

Source: Census of India —1981, Series 1 India, Part III A (i)
General Economic Tables, B-5, Part A (for Urban)

Table 11

School Attendance of Children by Sex: 19[illegible]
(5–14 years)

		Males (%)		Females (%)
1.	Total Child Population (Rural + Urban) of which	93532864 (100.00)		86064380 (100.00)
(i)	Total Attending School (Rural + Urban)	49519942 (52.94)		29916843 (34.76)
(ii)	Total Not Attending School (Rural + Urban)	44012922 (47.06)		56147537 (65.24)
2.	Total Child Workers (Main + Marginal) (2 as % of 1) of which	8110810 (8.67)		5526555 (6.42)
(i)	Total Attending School [(i) as % of 2]	261609 (3.23)		82047 (1.48)
(ii)	Total Not Attending School [(ii) as % of 2]	7849201 (96.77)		5444508 (98.52)
3.	Total Child Non-Workers (3 as % of 1) of which	85422054 (91.33)		29834796 (93.58)
(i)	Total Attending School [(i) as % of 3]	49258333 (57.66)	(i)	80537825 (37.04)
(ii)	Total Not Attending School [(iii) as % of 3]	36163721 (42.34)	(ii)	50703029 (62.96)

Source: Computed from: Census of India, Series 1—India Part IV-A, Social and Cultural Tables, (Tables C-3, Part A, C-3, Part B, and C-4).

Table 12

Economic Activity a[illegible] School Attendance of Children By Sex and Residence
(5 –14 years)

		Males		Females	
		Rural	Urban	Rural	Urban
1.	Total Child Population of which	73050750	20482114	67101915	18962465
	Attending School	48.34%	69.37%	27.48%	60.52%
	Not Attending School	51.66%	30.63%	72.52%	39.48%
2.	Total Main Workers	6696333	738865	3504569	252488
	(2 as % of 1)	(9.17)	(3.61)	(5.22)	(1.33)
	of which				
	Attending school	0.49	0.61	0.20	0.36
	Not Attending School	99.51	99.39	99.80	99.64
3.	Total Marginal Workers	644063	31549	1721693	47805
	(3 as % of 1)	(0.88)	(0.15)	(2.57)	(0.25)
	of which:				
	Attending School	33.81	20.30	4.17	5.11
	Not Attending School	66.19	79.70	95.83	94.89
4.	Total Non-workers	65710354	19711700	61875653	18662172
	(4 as % of 1)	(89.95)	(96.24)	(92.21)	(98.42)
	of which				
	Attending School	53.36	72.03	29.68	61.48
	Not Attending School	46.64	27.97	70.32	38.52

Source: Computed from: Series I - India
Census of India, Series I-India, Part IV-A, Social and Cultural Tables, (Tables C-3, Part A, C-3, Part B, and C-4).

Table 13

Educational Level of Child (Main) Workers —Rural + Urban, 1981
(Below 14 years of age)

	Age	Urban Main Workers		Rural Main Workers	
		Males	Females	Males	Females
Total Child Workers	0-14	739102	252514	6698743	3505185
		(100.00)	(100.00)	(100.00)	(100.00)
Illiterate		469128	195067	5342133	3117111
		(63.47)	(77.25)	(79.75)	(88.93)
Primary		127725	25241	574730	168601
		(17.28)	(10.0)	(8.58)	(4.81)
Middle		25681	4132	55659	22721
		(3.47)	(1.64)	(1.28)	(0.65)
Matric/Sec.		3150	472	6920	973
		(.43)	(0.19)	(0.10)	(0.03)
Higher Sec. /Inter/Pre Univ.		221	22	437	32
		(neg)	(neg)	0.01)	((neg)
Non-technical diploma not equivalent to degree		26	5	36	1o
		(neg)	(neg)	(neg)	(neg)
Tech. diploma not equivalent to degree		8	5	47	9
		(neg)	(neg)	(neg)	(neg)

Note: Figures within brackets indicate percentages to totals.
Source: Census of India 1981, Series I, India, Part III A (i) General Eco. Tables, B-5, Part A (for Urban), B-5, Part B (for Rural)

Table 14

Educational Level of Children of Scheduled Castes (All Areas) (0 –14 years)

Levels of Education	0–4 years		5–9 years		10–14 years	
	Males	Females	Males	Females	Males	Females
Total SC Child Population	6958012	6813608	7946081	7300127	7162648	6071322
(as percent of total population of all ages)	(13.00)	(13.68)	(14.86)	(14.66)	(13.39)	(12.19)
Illiterate (as per cent of total population of the relevant age group)	6958012 (100.00)	6813608 (100.00)	5899512 (74.24)	6186838 (84.75)	3346928 (46.73)	4502336 (74.16)
Literate without educational level			1986673 (25.00)	1077906 (14.77)	1840219 (25.69)	733975 (12.09)
Educational Level						
Primary			59896 (0.25)	35383 (0.48)	1628011 (22.73)	682015 (11.23)
Middle					331436 (4.63)	146115 (2.41)
Matric/Sec.					15123 (0.21)	6511 (0.11)
Higher Sec/Inter/ Pre Univ					751 (0.01)	319 (neg)
Non-technical diploma not equivalent to degree					50 (neg)	27 (neg)
Technical diploma not equivalent to degree					119 (neg)	24 (neg)

Source: Census of India 1981, Series I, India, Part IV A (i) Social and Cultural Tables (Scheduled Castes)

Table 15

Educational Level of Children of Scheduled Tribes (all Areas)
(0–14 years)

Levels of Education	0–4 years		5–9 years		10–14 years	
	Males	Females	Males	Females	Males	Females
Total ST Child Population (as per cent of total population of all ages)	3366832 (12.95)	3417147 (13.37)	3879194 (14.92)	3817415 (14.94)	3427798 (13.21)	3175288 (12.42)
Illiterate (as per cent of total population of the relevant age group)	3366832 (100.00)	3417147 (100.00)	3103942 (80.07)	3408595 (89.29)	2012066 (58.70)	2589 (81.57)
Literate without educational level			755229 (19.47)	399753 (10.47)	805447 (23.50)	339513 (10.69)
Educational Level:						
Primary			18023 (0.46)	9067 (0.24)	501337 (14.63)	197940 (6.24)
Middle			-	-	101906 (3.06)	45636 (1.44)
Matric/Sec.					3939 (0.11)	1944 (0.06)
Higher Sec/Inter/ Pre.Univ					170 (neg)	71 (neg)
Non-technical diploma not equivalent to degree					9 (neg)	3 (neg)
Technical diploma not equivalent to degree					21 (neg)	13 (neg)

Source: Census of India 1981, Series 1, India, Part IV–A (i) Social and Cultural Tables (Scheduled Tribes)

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HEALTH WATCH

UP DATE

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Dear Friends:

Since June 1995 when the first issue of *HealthWatch* was released, we have received several letters from all parts of the country. While some were requests to be put on the mailing list, others sought information on how to translate reproductive health approach into action at the grass-roots level. We were overwhelmed by the concern shown by many to provide health care to women in remote corners of the country where none exists. We have included abstracts from a few of these responses in this issue.

A number of activities have taken place since we communicated with you last. The most important event, of course, was the Women's Conference at Beijing which was attended by the Indians from all quarters and constituencies. This issue carries two pieces on the Beijing conference, one by Ms. Gita Sen and the other by the CHETNA team. Both actively participated at the NGO forum and in the official conference sessions. The Women's conference further strengthens our commitment to ensure provision of reproductive health care to women.

We, as active members of the NGOs, however, have to put our heads together to see that the commitment made by our government both at Cairo and at Beijing is not lost sight of in the bureaucratic maze, nor shelved due to the reluctance to accept and implement change. We will have to continue our interactions and dialogue with the government at all levels. We will also have to think hard, both collectively and individually, to identify implementable programmes which reflect our concerns, keeping the ground-level reality in mind. The summary of Ms. Cynthia Myntii's longer piece included here shows one such effort in this direction. In anther article, Ms. Leela Visaria pleads for building a database on reproductive health of women in our country and reports on a limited effort at data collection undertaken at the Gujarat Institute of Development Research.

As indicated in the June Update, our commitment to the reproductive health approach is closely tied to the removal of method-specific targets from the family planning programme. The Government of India has decided to remove the targets in a phased manner: all major states have identified the districts of their choice for implementing the programme while abolishing targets at grass-roots level. Tamil Nadu and Kerala have decided to make the entire states target-free. Keeping this in view, we had requested Mr. Ramasundaram, Special Secretary, Health and Family Welfare Department, to write an anccount of the Tamil Nadu experience. It appears in this issue.

We have been thinking about organising a convention to share experiences and ideas. It will provide an opportunity to know one another better and presonally. While the venue, time and mode are yet to be worked out, we invite your suggestions. Should we concentrate discussions on any specific themes? Once we are able to firm up the place and dates, we will write to you so that you can plan to attend the meet.

We take this opportunity to invite your contribution in the form of articles, discussions, reflections and accounts of experiences as well as suggestions and comments pertaining to the materials presented and issues raised. Your feedback will help us to be more selective, focussed and responsive.

REPORT ON BEIJING

No brief report can really do justice to the Beijing conference. In this report, therefore, I have only touched on some aspects of the issues and the politics of both the NGO Forum and the Official Conference, and particularly addressed issues of health and rights.

Huairou: The NGO Forum

The NGO Forum opened in Huairou amid continuing controversy about the adequacy of the site and the facilities. The months before had seen a tussle of wills between the NGO Forum's Organising Committee and the Chinese government arising out of the latter's decision to shift the Forum site far away from the location of the Official Conference, which was to take place in Beijing. Finally Huairou had been accepted, with the Chinese government promising adequate and improved facilities.

When NGO participants started arriving in Huairou, it became clear that the facilities still left a lot to be desired. Many of the dormitories had barely been finished and were full of dust; some of the large buildings that were to hold panels and workshops were

unfinished concrete shells; and the promised access for the disabled was inadequate enough to force them to hold protest demonstrations on a number of days. These were only a few of the problems participants faced at the Forum.

The point is not whether the Chinese authorities were trying or not; they clearly were. But one must remember that the problem was of their own making, a result of their decision (driven by a paranoia about what the presence of large numbers of women from non-governmental orgenisations would do) to shift from the original Forum site. And they acted just like a top-down, authoritarian bureaucracy. If someone at the top felt an issue was important, it received attention and energy; not otherwise. Clearly the needs of the disabled belonged to the latter category, while surveillance of human rights groups belonged to the former.

In all of this, the biggest failure was of the UN itself. Contravening the practice of recent UN conferences where NGOs have been recognised as having a vital and legitimate role, the offices of both the Secretary-General for the Conference and of the UN itself distanced themselves from the problems of the NGOs in Huairou. They left the NGO Organising Committee hanging in the air as it were. At the peak of the tension about the facilities and surveillance in Huairou, UN Secretary General, Mr. Boutros Ghali, cancelled his planned trip to open the Official Conference, pleading illness even though he was only as far away as Bali. Despite rumours to the contrary, he never put in an appearance at the Fourth World Conference on Women, thereby showing his commitment to the world's women.

According to some, nothing better could have been expected since the low priority that the UN gives to this half of the human race is evident in the poor funding and the weak institutional machinery for women within the UN system itself. My own belief is that the UN could not have got away with what it did if this conference had been about any other issue.

Despite these obstacles, women turned Huairou into a tremendous opportunity for solidarity, networking, and an exchange of materials,experiences, and ideas. Many panels and workshops were of very high quality, with a depth of knowledge and analysis that showed how far women's movements and organisations in different parts of the world have come in the ten years since the Nairobi conference. Among hundreds of workshops, panels and plenaries, three themes dominated the discussions at Huairou: (i) the negative impact of structural adjustment and the need for alternative development frameworks more sensitive to the concerns of women and poor people; (ii) women's rights as human rights; and (iii) fundamentalism.

Beijing: The Official Conference

Not surprisingly, these same themes also dominated the Official Conference in different guises. The most active and effective NGO caucuses lobbying government delegations were those on human rights, health, and economic justice. What was striking was the extent of coordination between these caucuses which made the three sets of issues appear interdependent rather than competing. Human rights and health were the battleground of the major struggle between women's organizations and religious fundamentalists, as had already been foretold by the experiences of the *prepcoms* and of the two most recent conferences, the International Conference on Population and Development (ICPD) in Cairo and the Social Summit in Copenhagen.

Women's Health and Rights

Most of the Health section of the Platform for Action (PFA) was in brackets going into Beijing. All the agreements and language reached in Cairo on reproductive and sexual health and reproductive rights for women were in jeopardy. Women's health organisations appeared to have their backs to the wall in an attempt to prevent backsliding from Cairo. But three things worked in our favour in Beijing. First, unlike ICPD, Beijing was a *women's* conference, which meant that the atmosphere in the negotiations was conducive to concern for women's needs and support for women's rights. Second, in the year intervening between Cairo and Beijing, many governments had clearly become more comfortable with the language and concepts of sexual and reproductive health and rights. Third, many government delegations included feminists, including men, who were strongly sympathetic to women. A striking result of this was the strong support for feminist positions from a large number of governments from the South. Among the best organised regional groupings were those from Southern Africa and from the Caribbean. India also intervened effectively on a number of points. Ms. Sarla Gopalan got a thunderous ovation at the final plenary when she affirmed India's support for the PFA without any reservations. New and articulate voices were thus speaking for women's health from among the governments themselves. It was not so easy for the Holy See or other fundamentalists to play on the traditional South-North divide.

What was actually gained in terms of the health section of the PFA? All the major concepts of the ICPD -- reproductive and sexual health, reproductive rights, the treatment of unsafe abortion as a health concern and the importance of primary health care -- were protected in Beijing. But we also were able to move forward on other fronts. The problems posed by structural adjustment, health care privatization, and a growing lack of access to health services were

acknowledged. Gender biases in health, especially the effects of son preference, as manifested in sex-selection and neglect and work burdens of girls, were clearly addressed. An attempt by the Holy See and its supporters to bring in anti-abortion language through the use of the term "foeticide" was warded off. The document explicitly recognises that "the human rights of women include their right to have control over and decide freely and responsibly on matters related to their sexuality, including sexual and reproductive health, free of coercion, discrimination and violence". Abuse, violence and denial of rights to women in the area of sexuality is no longer a *private* affair; it has entered the *public* arena in an important way. On abortion, the document goes beyond the ICPD treatment of unsafe abortion as a health issue; it calls for a review of laws that criminalize women who have illegal abortions.

For some time now, cultural relativism has been a strong argument espoused by fundamentalists on issues concerning women -- recall their attack on the term "gender" during the final *prepcom* -- particularly on women's health and control over their own bodies. Women's groups going into Beijing had feared that there would be an overriding clause giving priority to traditions, cultures and religions over women's human rights early in the PFA. Health groups were particularly concerned that, in addition, a double standard would be applied to women's health and bodies through an additional special footnote at the start of the health section. A major achievement therefore is that the reference to culture, religion and national sovereignity (Paragraph 9 of the PFA) strongly supports women's human rights, and is much better than the corresponding paragraph in the ICPD - POA. And there is no further reference to it in the health section.

Despite these gains, the hard issues of economic justice remain. The North remained as intransigent as ever on resources, although as a feminist I wonder if I really want "new and additional resources" in the hands of fundamentalist and anti-women regimes. The UN itself is in such financial disarray that it is doubtful if it can give support to the world's women. UNIFEM appears to have come through its ordeal by fire, but it still needs funds desperately. One of the few positive signs seems to be the position being taken by the new President of the World Bank, Mr. James Wolfensohn. If his initial actions and speeches, including the one made in Beijing, can serve as an indicator, there is a chance that we may see some positive changes in that hard bureaucracy. But, in the end, the way forward from Beijing will depend on the spirit, flexibility, learning capacity, and resilience of the women's movements of the world.

Gita Sen
Bangalore

BEIJING: IMPRESSIONS, IMPLICATIONS, IMPLEMENTATION

Two momentous events took place in China during September 1995: the NGO Forum on Women called Look at the World Through Women's Eyes was organised in the city of Huairou between August 30 and September 8, 1995, and the United Nations Fourth World Conference on Women on the theme of Equality, Development and Peace took place in Beijing between September 4 and 15, 1995. Approximately 35,000 women from all over the world participated in the NGO Forum with a view to influence the proceedings of the UN conference. The majority of participants were grass-roots level women whose attendance in vast numbers is unprecedented in the history of such conferences. Their participation made it possible to put the Southern countries' agenda into the UN official document, Platform for Action. The text of the document was finalised after 6,000 women and men representing accredited NGOs from around the world as well as an equal number of official delegates debated it at the UN conference. The Platform for Action will serve as a guideline for national action to be taken to achieve the goal of equality, development and peace.

The women at the NGO Forum were committed to highlighting women's critical concerns and influencing the official document using workshops, plenaries, demonstrations, peace marches, street plays, women weave, posters, slogans, handouts and exhibitions as means. An atmosphere of overwhelming solidarity prevailed, and work was carried out informally and even joyfully.

Nearly four thousand workshops were organised on the following major themes: Poverty, Education, Health Care, Economic Structures and Policies, Sharing of Power, Advancement of Women, Women's Human Rights, Media, Environment, and the Girl Child. About 45 workshops were organised simultaneously on each theme in a sprawling campus of 26 hectares, lined with posters, exhibitions, information about and handicrafts from various countries.

In contrast, the environment of the official UN conference was extremely formal and the security arrangements were tight. The stringent security measures, however, did not dampen the spirit of the participants and they worked into the small hours of the night. These women met regularly in informal caucuses designated for the women's groups to debate, discuss and deliberate with the ultimate goal of influencing the document. Nearly 45 caucuses were organised on a variety of women's concerns. NGOs also consulted with and advised the official delegates of their own countries with a view to influence them. If the outcomes were not favourable, they continued to lobby delegates from other countries. In addition, they

tried to remain present in the working groups meant for official delegates to keep abreast of the progress in the various sections of the document.

The NGO Forum highlighted the numerous issues of women's health from a gender perspective focusing on violence against women and reproductive health. The latter included use of safe contraceptives, sensitisation of men and problems of mental health. The Southern countries' major concern was the provision of comprehensive health care for women which includes mental, occupational and reproductive health care encompassing the entire life span. A strong demand was made for an affordable, accessible, competent and gender sensitive health infrastructure as well as trained personnel equipped with adequate resources, even at the periphery, to attain the goal of comprehensive health care.

Dialogue between representatives of Southern and Northern countries helped to broaden the understanding of reproductive health to include not only maternal health and safe birth control methods, but also the need to address infertility, abortion and violence as issues which affect women's social and physical well-being. Representatives from developed countries found the Southern countries' indigenous health practices valuable and interesting, particularly their use as a tool for the empowerment of women and the life cycle approach to women's health which is holistic and integrated.

The issues of the Girl Child, apart from being addressed and emphasised by women, were also voiced by young girls who lobbied the officials. Sex tourism, the effect of industrialisation on the health and development of girls and reproductive and sexual health of the adolescent were major areas of concern and discussion. Representatives of the developed countries showed a keen interest in learning about the culturally sensitive and acceptable methods of reaching out to communities, and especially to young boys and girls.

Inheritance Rights was another controversial issue. Most of the Islamic countries do not believe in the equal rights of men and women in this area. The issue remained unresolved until the end when finally, as a compromise, a statement which advocated equal access to property "within the context of national laws" was accepted.

Other significant highlights of the document include the reduction of infant and maternal mortality rates, halving the number of women living in extreme poverty by the year 2000, reduction in the female illiteracy rate, the commitment to strive for universal access to basic education, and the promotion of the gender perspective in all policy making processes.
Effective implementation of the PFA requires sensitising NGO and GO leaders to the gender perspective which should percolate to the supervisory and field-level workers. Consistent documentation and analysis by NGOs are also required for the advocacy purposes and for meaningful and realistic macro - and micro-level planning of the programmes. Implementation, monitoring and evaluation of women-centred programmes should be an integral part of the future agenda of NGOs.

To ensure democratic participation of women themselves in these development processes, training women as leaders at the community level should be a crucial component of all programmes for women so that they can assume decision making positions at the town, municipal, village, block and district levels.

The Beijing conference has ensured that the doors are now open to NGOs to stride ahead in true partnership with GOs. However, this is just the beginning; there is a long road ahead before the goal of action and implementation of the commitments agreed upon in the Platform for Action can be realised at the national and state levels.

One resounding message has come from the Beijing experience: despite the clouds of controversy and confrontation, it is time for the world's governments and decision makers to understand that women are the key to economic growth in developing countries. No country can eradicate poverty if it ignores women!

CHETNA Team
Ahmedabad

NATIONAL REPRODUCTIVE HEALTH NEEDS ASSESSMENTS: GUIDELINES[1]

Reproductive health is a new reality, shaped by the increasingly vocal women's health advocates all over the world and by the accumulating evidence about AIDS, STD and violence against women. These developments have forced communities to reconsider the context in which women and men have sexual relations, regulate their fertility and have children.

Keeping this in mind, guidelines are developed for the staff who would be making systematic assessment of reproductive health needs of a nation. They are meant for an open and participatory process, not for an expert committee to determine the problems and issues. They describe a process that solicits the perspectives of a wide range of groups that have something to say on the subject -- from policy makers and health care providers to biomedical and social scientists, from young people to women's health advocates. The process seeks to avoid exclusively medical definitions of reproductive health but expects

[1] This is an abridged version.

to be scientifically rigorous. A range of tools are to be employed to seek and analyse information: open research techniques when it is essential to "hear people out" and closed research techniques when measuring the magnitude of specific problems. The work plan envisages travel outside the capital city, observation of health services and conversations with peripheral health care workers and ordinary women and men. They can be used in such instances where national policy makers show interest in rethinking their approaches to reproductive health and are open to NGO's perspectives.

An operational definition of *reproductive health* includes the following aspects:

- safe and satisfying sex life,
- capability to reproduce,
- reproductive freedom,
- fertility regulation (contraception and pregnancy termination),
- safe pregnancy and child birth,
- healthy newborns, and
- the elimination of harmful practices and other reproductive health problems[2].

The guidelines outline the first two steps in the process of planning reproductive health activities. The first is a systematic identification and ranking of concerns. Once the priority concerns have been named, the second step is a separate analysis of each one of them. The guidelines set out to be a practical and participatory planning tool for all persons committed to improving reproductive health.

Step One

Step one of the assessment process is an overview of reproductive health needs. The specific guidelines for the preliminary groundwork consist of (a) agreeing on overall and operating principles of the assessment by the main parties, viz., the external agency and the main government institution involved; (b) selecting a national co-ordinator with a commitment to reproductive health, a gender-sensitive outlook, conviction of value of diverse perspectives, and enough time; (c) refining the division of labour and establishing criteria for participation; (d) forming a coordinating committee consisting of policy makers, service providers, biomedical scientists, social scientists, management specialists and members of NGOs; and (e) informing resident representatives of donor agencies of the assessment.

Once the recruitment is over, the next action is to identify the needs. Here the specific guidelines include (a) hosting of a one-day "launching meeting" to give visibility and legitimacy to the assessment, to explain the objectives and benefits, and to invite support and collaboration; (b) holding the first meeting of the committee to promote group dynamics; (c) holding field visits and consultations with constituencies and ranking emerging concerns qualitatively.

While setting priorities, the committee should meet again to review the results of field visits and consultations and prioritise concerns. To identify gaps in knowledge, literature should be reviewed before a final assessment is made. Special workshops for women's health advocates and activists should be conducted. A national workshop should be convened to disseminate results and to plan follow-ups.

Step Two

Step two of the process is the analysis of specific needs. This brings into focus those concerns identified as priorities in step one. An in-depth situation analysis should be conducted on specific reproductive health priorities. It should cover the following: (a) decide who should participate in the process, (b) assess what is known and not known, (c) review existing policy and legislation, and services that are relevant, (d) examine other non-programme influences, and (e) discuss "success stories" of local experiments to extract lessons from them.

Once this is over, the way forward has to be planned that includes the following: (a) decide what new information is needed, (b) plan research and research strengthening, (c) consider whether policies should be changed, (d) delineate the ideal services, and (e) chalk out what needs to be done to reach the ideal.

Finally, once a major concern is identified, specific activities should be planned. A workshop to brief constituencies on the results of steps one and two should be conducted.

The guidelines also include a reproductive health matrix as an exercise in the assessment. The time allocated for the whole exercise is around six months, four months for step one and two months for step two.

Followed systematically, these guidelines will help the national governments to address themselves to the reproductive health needs of women and men of their countries.

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A STUDY OF REPRODUCTIVE MORBIDITY IN GUJARAT: A SMALL BEGINNING

Apart from the findings of a pioneer community-based study undertaken in a couple of tribal villages in Maharashtra state by an NGO team called SEARCH

[2] *HealthWatch believes that* safe abortion and reproductive morbidity are sufficiently important to be explicitly and separately listed.

and a few scattered studies conducted elsewheretrs[3], we know little about the status of reproductive health of Indian women. There are virtually no national level estimates of prevalence of reproductive morbidity. Little information is available on whether and from where women seek medical care.The socio-cultural and economic characteristics of the women with various reproductive health problems are not known. Nor do we understand whether lack of treatment is due to resource constraint or related to women's low status in the household.

The lack of information, in my opinion, is due to three factors. First, the emphasis of the national family welfare programme has been on the provision of family planning services and pre-natal care to pregnant women and not on reproductive health services which are virtually non-existent in the rural areas. Second, those NGOs which provide reproductive health services along with general health care to the community do not systematically document their efforts. Even when information is recorded, it is not analysed to indicate the extent of infertility or the level or determinants of reproductive morbidity or health of women. Third, until recently, health researchers have paid scant attention to studying women's health concerns and needs and thus have failed to create an adequate database to understand the status of reproductive health of Indian women.

One of the reasons for not undertaking a study related to women's health is that it requires multi-disciplinary team involving social scientists, medical practitioners, etc. It is not always easy to work in a team when the members come from varied backgrounds. The social scientists, on one hand, have raised doubts about the value of researching women's reproductive health because of the belief that women deliberately under-report their suffering and complaints which they rarely discuss even with their near ones. It is therefore feared that the difference between survey-based estimates of morbidity and clinic-based community-level estimates would be so wide that the survey approach may prove fruitless. On the other hand, it is also argued that some women may report ailments to a sympathetic listener which are imaginary and cannot be supported by medical investigations. Thus there is a possibility that certain ailments may be over-reported.

Such apprehensions need to be dispelled by conducting actual studies.One way to resolve the issue is to follow up reported statements of morbidity with a medical check-up by way of verification. Methodologically, such a study can enhance our understanding of the discrepancy between perceptions and scientific evidence.

At the Gujarat Institute of Development Research in Ahmedabad, we have attempted a reproductive morbidity study in five villages of one of the prosperous districts in Gujarat state. During May-June of 1995, we interviewed 322 married women at some length about their reproductive health and morbidity. The questionnaire was designed carefully after consulting the data instruments available from other such studies and discussing the issues with two local gynaecologists. The investigators were trained to enhance their understanding of the gynaecological ailments as well as local terms and descriptions used. Following the survey, the respondent women were examined by a team of gynaecologists. In addition to the clinical examination, cervical smears were obtained for early cancer detection. We also provided treatment or referral service to those women who needed them. The study is not yet completed, but I would like to share some lessons and findings.

Preliminary findings indicate that nearly 60 percent of the women interviewed reported some morbidity related to their reproductive functions.Majority of them had not sought any medical care earlier. A sizeable proportion of the women did not even mention their ailment to their husbands or other members of the family. Many women felt inhibited to discuss matters closely associated with sex and childbearing with any one else, which prevented them from seeking care. When asked why they have not sought medical help, their typical response was that such problems were part of being a woman; all women have to endure some pain. Distantly located women doctors and shortage of money also acted as constraints to seeking health care.

The response to the next medical examination organised during September 1995 was overwhelming. Nearly 250 women in the five villages consulted the gynaecologists. Many women who were not in our sample also came. Some minor ailments were treated with medication; others needed further investigations and were referred. It was clear that there is a vast unmet need for such services in rural areas.

The study brought home the fact that *a priori,* there is no reason to believe that women, if approached with empathy by women investigators, will not respond positively and talk about their ailments. I also believe that, as a signatory of the Platform for Action adopted at the Cairo Conference, we must endeavour to strengthen our programmatic efforts and enhance our understanding of women's reproductive health issues by undertaking action-cum-research studies across the

[3] For a review of these studies, see: Shireen J. Jejeebhoy and Saumya R. Rao, "Unsafe Motherhood: A Review of Reproductive Health in India" paper presented at the Workshop on Health and Development in India, National Council of Applied Economic Research and Harvard University Centre for Population and Development Studies, held at New Delhi, January 2-4, 1992.

country. The researchers should be encouraged to follow standard sampling procedures and common methodologies, including data-collection instruments, in order to build a very vital knowledge base on reproductive health in India. The NGOs can also become active partners in our quest by undertaking studies in their communities[4].

Leela Visaria
Ahmedabad

FAMILY WELFARE WITHOUT TARGETS: TAMIL NADU'S EXPERIENCE

For over thirty years, the family welfare performance of states in India or smaller units like districts, taluks, blocks or even individual government servants has been assessed on the basis of numerical targets for four major contraceptive methods, namely, sterilisations, intra-uterine devices (IUDs), oral pills and condoms. Among these, sterilisation targets were accorded the highest priority. The basis for this approach is the argument that, if the contraceptive targets are achieved, the birth rate will decline.

But the available evidence does not support this argument. Kerala and Tamil Nadu have the lowest birth rates, 18 and 20 respectively, though they have not been achieving their sterilisation targets consistently. Conversely, Maharashtra and Punjab have higher birth rates, 26 and 27 respectively, though they have performed quite well in terms of sterilisation figures. Even U.P. has exceeded the family planning target in three successive years, 1986-90. Yet its birth rate of 35 in 1991 was almost twice that of Kerala.

When one takes this analysis further by looking at the couple protection rates (CPR) and the crude birth rates (CBR) in different states, one comes across a puzzle. No strong negative correlation between the two is found, though it should be present in theory. For example, Kerala, with a CPR of 55 percent, had a CBR of 18 in 1991, while Punjab, with a CPR of 74 percent, had a CBR of 27 in the same year! There are two explanations of this paradox: performance figures are inflated to avoid punishments/transfers and contraception is adopted by couples at a fairly late age after attaining their desired family size. The second becomes a particularly powerful explanation when sterilisation targets are given to staff from the revenue, rural development and education departments.

District Level Initiatives

Until 1990-91, the famil welfare programme in Tamil Nadu was guided by targets, and the results were also consistent with the paradox mentioned above: while most districts achieved their sterilisation targets, their birth rates differed widely. The Tamil Nadu government took note of these facts and during 1991-92 abolished sterilisation targets for the field staff of revenue and rural development departments in two districts, Periyar and Dindigul. This was considered a dangerous experiment at that time because it was unthinkable that the family welfare programme could be implemented without giving targets to the revenue and rural development staff working directly under the District Collector. By the end of that financial year, however, this myth was exploded when both the districts exceeded their sterilisation targets.

Encouraged by this, the Tamil Nadu government extended this reform to two more districts in 1992-93. As Collector of North Arcot Ambedkar district at that time, I volunteered and received permission to implement family welfare programme in which the non-health functionaries were not given any targets. Several district-level officers cautioned me against this foolish attempt to modify an "old" programme like family planning. By October 1992, the performance figures for the first six months of 1992-93 did not show any decline in the sterilisation figures. So I went ahead and abolished targets even for the health deprtment staff from October 1992. By the end of 1992-93, the district had posted the best sterilisation performance in a decade! I documented this experience and circulated it among other Collectors and senior officials at Madras.

State Level Reforms

The launching of the Dr.Jayalalitha 15-Point Programme for Child Welfare and the announcement of the State Population Policy by the Tamil Nadu Chief Minister in November 1993 set the stage for state-level reforms in the family welfare programme. Both these policy documents emphasised the importance of maternal and child health services rather than the mere achievement of contraceptive method targets. By this time, I had joined the Health Department at Madras and initiated a two-step reform process: the first step was to abolish targets for the revenue and rural development staff in the remaining districts and the second step was to abolish targets even for the health staff. We held extensive consultations with representatives of auxillary nurse-midwives (ANMs) about these reforms who gave their wholehearted support to them.

The first step was ordered by the Tamil Nadu government in 1994-95. Its salient features were:

- Abolition of targets for all non-health staff in the state;
- Allotment of targets in female contraceptive methods exclusively to ANMs and in male methods

[4] If you would like to obtain our questionnaire schedule or know more about the study, please write to *HealthWatch*.

to the male workers;
- Removal of motivator fee and motivator certificate; and
- Simplification of travelling allowance procedures.

The results were astounding! For the first time in nearly thirty years, Tamil Nadu achieved the targets in all the four methods of contraception, while saving about Rs. three crores in travelling allowance and motivator fees. In the process, several well-entrenched beliefs were exposed as baseless.

This enabled the government to move on to the second stage of reforms in 1995-96. Once again, the salient features were discussed with the ANMs who supported them readily. The second stage of reform was characterised by the following:

- No targets from above even for the health staff;
- Micro-level targets for reproductive health, maternal and child health and contraceptive methods to be fixed by the ANM herself;
- Retention of vasectomy targets for the male workers;
- Reduction in the number of registers for ANMs;
- Simplified recording and reporting formats for ANMs;
- Improvements in service conditions of ANMs such as higher uniform allowance, and loan to buy mopeds; and
- Inclusion of reproductive tract infection and sextually transmitted disease services in the programme.

The results till 30 September 1995 indicate that there is no fall in sterilisation figures, while there is an increase in the acceptance of the temporary methods, compared to the same period in 1994.

Conclusions

It is heartening to see that the Government of India has also initiated a similar process of reforms. It has allowed every state to declare one or two districts as "target free". In the case of Kerala and Tamil Nadu, it has gone even further by declaring the entire states as "target free". The entire issue was reviewed by the Government of India and the States in the third week of October 1995 at Delhi. Tamil Nadu had suggested that a two-step reform process over the whole state (as done in Tamil Nadu) would be a better option compared to an abrupt and total abolition of targets in a few districts without an alternative sytem of monitoring.

The reproductive health approach, agreed upon by all nations at the Cairo Conference, emphasises overall reproductive health as the objective rather than rapid fertility reduction. Since the Government of India is already committed to the reproductive health approach to the family welfare programme, it ought to move forward by advocating a micro-level planning approach for the delivery of reproductive and child health services in all the states. The example of Tamil Nadu shows that this is feasible in the Indian context, both in terms of implementation and monitoring[5].

S. Ramasundaram
Madras

FROM OUR MAILBAG

After the release of the June update of *HealthWatch,* we have received communications from researchers, newspaper reporters, and other interested individuals as well as from NGOs, research institutes, university departments and funding organisations. Some have congratulated us on our venture, others have sought help and guidance, still others have sent us information about themselves. Among others, we have heard from Annapurna Vancheswarn, P. R. Sodani, S. Rema, Prabha Kotiswaran, Dinesh Agarwal, Brijesh Singhvi, Preeti Kudesia, Nimitta Bhatt, Anjali Widge, N. Haridasan, Lily Kak and L. K. Paikraj. Of course, NGOs constitute the majority of our respondents.The following NGOs have sent us their newsletter or brochure.

- *Community Health Cell,* No. 367, Srinivasa Nilaya, Jakkasandra, 1st Main Block, Koramangala, Bangalore 560 034.
  Contact: Anjna Srinivas.
- *INDU: Individuals in Development Unity*, Sai Niwas, Khondgewadi, Lonawala, Maharashtra 410401.
  Contact: Ratna Bannerjee.
- *Sampark:* Parivar Seva Sansthan, 28 Defence Colony Market, New Delhi 110 024.
  Contact: Ruba Bannerjee.
- *Voices:* Madhyam Communications, Post Box 4610, 59 Miller Road, Benson Town, Bangalore 560 046.
  Contact: Sucharita S. Eeshwar.

The commissioner of Family Weflare, Andhra Pradesh, has spread the word about *HealthWatch* to the State District Medical and Health Officers and relevant NGOs. He has asked them to write to the *HealthWatch* about their experiences and innovative activities.

[5] This account of the Tamil Nadu experience has successfully argued for removing method-specific targets as an efficiency measure for lowering birthrates. However, there is women's health perspective on this issue too. According to it, fixing method-specific targets has resulted in distorted priorities in women's concerns. Removing targets can mitigate the distortions *Health Watch.*

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DESIGN:ABHIKALP-469401, 446873.

Report of the National Commission on Self-Employed Women and Women in the Informal Sector. 1988

Industrial Training Institutes/Women's Wing of ITI's in the country and Polytechniques for women. Training for rural youth for self employment (TRYSEM) and short training progammes of various Boards, also provide training to women. Though 51.2 per cent of ex-trainees were employed and though their average income was good, the training resulted in considerable wastage in some areas. Major reasons for the wastages were lack of demand for the skill, lack of adequate support for self-employment, inadequacy of training, and indifference of trainees towards the job (when they did not belong to poorer sections of the society). For example, a large number of women take up tailoring and cutting work, but they cannot self-employment schemes successfully because the markets for the garments switched by them are limited. They do not have training which will help them to expand their existing ventures or start new ones which require skills in marketing, in acquring credit in maintenance of accounts and procedures in project formulation. Thus training in growth of entrepreneurship organizing, general awareness, knowledge of legal matters is also lacking.

Technology

89. As per the official approach, the technology policy in India aims at ensuring that our natural available endowments, specially human resources, are optimally utilised for a continuing increase in the well-being of the all sections of the population. However, if an industry has displaced women, who being in low skilled jobs operate in an area which is prone to be mechanized. Women being largely illiterate and untrained have little scope of learning how to operate the new machines or technical devices. The technological research also has not been directed to alleviating the drudgery of women, improving of specific tools and machines used by women or in the improvement of health and safety standards of women workers. Research for reducing of drudgery in domestic work has been limited to a few items like smokeless chullahs, gobar gas plant and solar cooker. The wider area of women's work has largely been left untouched. Similarly, in the area of occupational health hazards which the poor labouring women face have not been taken into account while introducing technology.

90. There are, some short-run measures which are recommended to protect women from displacement like directives should be issued to all industrial units, specially in the public sector, that no further reduction in the level of employment of women will be permitted. A small planning group should be set be yet the Technology Policy Cell to design a format, listing the criteria for evaluation of all proposals of technology transfer and automation in industries. So that a view can be taken with reference to women's opportunities for employment. Schemes should be formulated for retraining women released from sick industries or closed industrial units. There is also a need to develop a long term perspective for technology for women. This could be done on the following lines:—

91. The Ministry of Labour should prepare a list of those sectors/industries which are presently labour-intensive and provide employment to sizeable number of women but are likely to be affected by technology transfer jeopardising their employment opportunities. In such cases, the pace and degree of mechanisation should be so regulated and phased out that women are trained on the job and be given other inputs like credit and tools.

92. Projects which result in the displacement of women should not be issued business licenses and or funded or given concessions or subsidies by the Government, Banks and Corporations, unless the displaced women can be firmly rehabilitated in alternative employment. The displaced women should have the first priority in training for new jobs created by the new technology.

93. The Project Appraisal Division of the Planning Commission, in collaboration with the Technology Policy Implementation Committee, should formulate clear guidelines for the

approval of import of technology or automation in any given industry, by listing out critical issues to be considered in technology assessment and valuation.

94. The Inter-Departmental Working Group, set up by the Technology Policy Implementation Committee, to draw up guidelines for technology assessment and evaluation, and absorption of imported technology, has made a large number of recommendations (1985) which need to be implemented.

95. It should be incumbant on the employers to prepare a good feasibility report for submitting their proposal for a loan to the government for the purpose of technology transfer to indicate existing capital-labour ratio and changes expected after introduction of technology, present pattern of employment (sexwise) within the industry at the skilled, semi-skilled and unskilled levels, and the demand for different categories of labour after technology transfer.

96. All technologies which are likely to directly and indirectly increase women's workload must be accompanied by other technologies or measures to ease or eliminate these side effects. In other words, a systems approach should be used to develop packages, rather than the current uni-dimensional approach. These multi-faceted packages must be gender-sensitive and women biased.

97. The development of new technologies for tradit onal or even modern occupations, must be prioritised, beginning with woman's occupations. In other words, technology development must be selective, designed to impact positively on women's work, whether wage-work or non-wage work.

98. Development of simple or appropriate technology in the form of tools, implements and protective devices, to remove or reduce the work-related hazards faced by women, must be given top priority and taken up on a war-footing. Mechanisms must be created for involving the women themselves in the research and development process, so that the results are appropriate and useful to women.

99. An advisory committee, with some power of veto, must be set up at Central Government level to monitor the impact of technology on women. The Committee should also actively identify and promote the areas for research and development on pro-women technologies.

100. Existing technologies, which are not appropriate for women, though they are almost exclusively utilised by women (e.g. sewing machines, handcart pulling, table heights, cashewnuts, openers should be redesinged on a priority basis. The redesigning should be based on anthropometric measurements of Indian women.

101. Thirty-five per cent of all the research and development funds of national research and design institutes should be reserved for women's work, including occupational health studies, and working out changes in these for the convenience of women workers.

102. An important requirement in this context is of introducing in-built system of evaluation. The government agencies processing such proposals usually do not have adequate data on non-technical issues to give adequate weightage to them. Instead of doing a post-mortem analysis of the impact of production technologies on employment of women, there should be an in-built system of such evaluation. A multi-disciplinary group for technology evaluation may be set up under the aegis of the Ministry of Labour drawing expertise of several organisations within the government (including Planning Commission, economic ministries, financial institutions entrusted with the responsibility for analysing choices, Women s Cell of the Department of Science and Technology, representative of TPIC training institutions and research and development systems) and from non-governmental organisations. Pooling together data and information, the report prepared by the Group should be given due weightage while considering proposals of technology transfer and should be disseminated

widely.

103. Technology being such an important issue has been dealt with again in the Chapters on Legislative Protection and Health focussing on the legal aspects and the occupational health hazards.

Anti-poverty Programmes for Poor Women:

104. The strategy of direct attack on poverty was formulated in the early seventies and special programmes for the poor were introduced in the Fouth Five year Plan. However, when it was realised that "the poor" did not form a homogeneous group and that the different sections of the poor faced different constraints, specific programmes for various sections of the poor were formulated. Initially, special quotas (% of the total beneficiaries) were laid down for poor women, but subsequently, exclusive programmes for women were also introduced.

105. The present set of anti-poverty programmes can be broadly divided into the following broad categories:

(1) Programmes providing self-employment to the poor,
(2) Programmes providing wage-employment to the poor,
(3) Special Area Development Programmes,
(4) Programmes imparting training for skill formation, and
(5) Programmes pertaining to land reform.

The major anti-poverty programmes in the country are as follows:

1) IRDP: The main self-employment programme for rural areas today is the Integrated Rural Development Prgrammes (IRDP) which is regarded as "a major instrument of the Government Strategy to alleviate poverty." Its objective is to enable families below the poverty line to cross the poverty line through the use of productive assets.

2) DWCRA: In recognition of the fact that women have benefited only marginally under vaious rural development programme a pilot scheme was visualised in 1982-83. This was to be implemented in 50 selected districts all over the country to give a boost to the invlovement of women in anti-poverty programmes. Since reaching women in isolation was cosidered to be very difficult, it was decided to adopt a group approach to reach women in large numbers. Groups of 15-20 women belonging to families below the poverty line are expected to be organized under the programme for self-employment. These groups are provided financial assistance (loan and subsidy), technical assistance including training, marketing linkages and other follow up support to take up the selected enterprise successfully. The specific objectives of DWCRA are: (1) to improve women's participation in rural development, (2) to improve their earnings, (3) to help them acquire new skills, (4) to provide them better access to credit and to other social services, (5) to reduce their daily work-loan, (6) to establish meaningful linkages with various other programmes for the development of the rural and backward sections of the society and (7) to generate marketable output of women from these activities.

3) Wage Employment Programmes: Major wage-employment programmes which provide wage employment to the poor on public (and sometimes semi-public or private) works are National Rural Employment Programme (NREP) and Rural Landless Employment Guarantee Programme. A few states such as Maharashtra are also implementing the Emp oyment Gurantee Scheme.

4) Special Area Development Programes: Special Area Development Programmes aim at developing backward areas which are normally by-passed by the general development process. The main Area Development Programmes are Drought Prone

rape and assault faced by women from employers and officials, her statement be taken as sufficient proof while the onus should be on the accused to prove his innocence.

Other Safeguards—Property Laws, Desertion, Widowhood and Maintenance, Prohibition

112. The woman should have equal rights to ancestral property and even after marriage, she could claim it as and when she requires it. Also the property acquired after marriage must be in joint names and she must have the right in the matrimonial property when she is thrown out, divorced or widowed. The Government should give preference to widows and destitute women for government jobs, redistribution of land and in providing house sites for the houseless.

113. One of the most serious, if not the most serious, problem faced by women workers, whether home based or not, self-employed or not, is drunkenness on the part of their husbands and the consequences of this on the women. Wife beating, reduced if not non contribution towards the family upkeep by the husband out of his earnings, even depriving the women even of her meagre earnings, inculcating the habit of drink in the children and also in the women, etc. are some of the evils. Consideration for state revenues should not lead the government to view "Prohibition" unkindly. At least there must be total restriction on the production and sale of hard liquor. In the short run, the number of retail outlets should be reduced, number of days for sale reduced, location of outlets carefully selected, complete restriction on sale on pay day, payment of wages at least partly in kind and consultation with women's representatives on the opening of retail outlets and their locations—are some of the steps that should be taken.

114. Drug addiction which is also becoming a menace increasingly calls for similar preventive action.

Major Areas Of Focus

Technology and Self-employed Women

115. The question of the effects of the introduction of technology is a highly complex one. Technology is constantly entering and transforming all spheres of society. Furthermore, the effects of technology are felt at many different levels. They may be felt immediately or anytime in the future; they may be felt in the area where technology is introduced or anywhere else, nationally or even internationally; they may be felt by only one category of people or by the whole population; they may be felt in any or all spheres of society—social, economic, political etc. So, in order to judge the actual effect of a particular technology a multi-level, multi-dimensional study would have to be undertaken.

116. Here we will restrict our view to technology which affects work processes in which self-employed women are involved. We are not attempting to study the multi-dimensional effects of this technology but merely to make some observations on how self-employed women have so far been affected, how the negative effects can be scaled down and the positive effects increased.

Displacement of Self-employed Women

117. The greatest effect of technology in the work process has been the displacement of self-employed workers from their traditional occupations. This displacement occurs in a variety of ways:

(i) Direct displacement: This kind of displacement occurs when new machines or new processes are brought in to do work mechanically that the workers were doing

manually. Two recent examples are: In the coal mines loading and unloading is being done by contract labour both men and women. The introduction of loading—unloading machines has directly displaced these labourers. Again, Punjab is famous for its green revolution. Much of the farming operations of Punjab is done by agricultural labour brought in from Eastern India. Now the Ministry of Agriculture is encouraging the import of a 'Harvester-Combine' machine which would take over most of the farming process, thereby displacing thousands, perhaps lakhs of agricultural labourers.

(ii) Displacement by takeover of market: This kind of displacement has been affecting mainly small producers and artisans whose traditional markets have been taken over by machine produced goods. There are abundant examples of this: traditional cobblers have been displaced by shoe companies like Batas, products of potters have been replaced by plastic goods, handloom weavers are today involved in a life and death struggle with the powerloom sector.

(iii) Displacement by takeover of raw materials: Here again small producers are displaced because their raw material sources are taken over by mechanised sectors. Handloom weavers for example find it more difficult to get yarn because the mill sector gets first priority. Bamboo workers have to pay exorbitant prices for bamboo because the paper mills buy bamboo forests en masse.

(iv) Displacement by destruction of environment: Lakhs of self employed people have lost their livelihood through large scale change (destruction) of the environment. The most obvious example is the destruction of forests by the timber industry whereby minor forest produce gatherers, small and marginal farmers, livestock keepers etc. who lived off the forest have completely lost their livelihood and had to migrate in search of new employment.

Effect of Displacement on Women

118. Although self-employed men and women are both affected by displacement, it is generally found that the effect on women is much more pronounced. The reasons for this are firstly, women are usually involved in the most unskilled manual work. These types of work are the first to be mechanised. Secondly, women are not given training in skills so when their unskilled operations are mechanised they are not reabsorbed in the workforce. Finally women's employment is rarely defended, by the trade unions and we have in fact come across cases where women's employer has been deliberately sacrificed by the unions.

Other Issues of Technology

119. Apart from the issue of displacement, technology may bring about:-

(a) A higher production level

(b) A higher income level

(c) A change (for better or worse depending on the technology) in the health status of the worker

(d) A reduction (or increase depending on the technology) in the drudgery of the worker.

120. However each new technology has a different effect and the effect of raising the health of the worker by outweighed by massive displacement. We are only suggesting that when a technology is being evaluated all the above issues should be used as criteria.

121. It is important to emphasise, while dealing with this issues, that technology is 'not given'.

not an unalterable thing to be accepted as it is. Technology is developed by research and it is the need that creates a particular type of technology. This can be seen most clearly in drug technology where drugs are developed specifically for diseases. The disease determines the direction of the technological research. Similarly, in the case of work mechanisation, the direction in which the work process is desired to be altered determines the direction of technological research. The main question to be asked here is whose needs determine these technological directions? The answer to that question seems to be new technology creates higher profit margins for owners of large capital and therefore these owners determine the technology to be researched and applied. If, however, technology is to be used for the benefits of the self-employed worker then their needs should determine (i) which existing technology is implemented and (ii) the direction of technological research.

Recommendations

(1) All new technologies should be screened by a high-powered committee from the point of view of the workers Self-employed women should be an important component of this committee. The criteria for screening should be given.
   (a) Employment potential
   (b) Income accruing to work
   (c) Effect on drudgery
   (d) Effect on health
(2) Technologies which result in large unemployment should be banned.
(3) Beneficial technologies should be encouraged with tax rebates etc.
(4) The direction of research and development should be determined by the above committee.
(5) Within the framework of policy, the Equal Opportunities Commission will have the authority to advise, investigate and decide all matters relating to various kinds of work.

Employment Guarantee

122. Amelioration of the conditions of poor working women cannot be the sole objective of our exercise. We also seek to empower the woman to come into her own. This will be best achieved if we can create conditions under which the woman can earn a reasonable wage for her day's work and she can work on all the days that she is available and willing to work. Our recommendations, hope, will enable the women workers to earn reasonable wage for her labour. As for employment, our recommendations regarding fall back wage and retaining allowance will mitigate her hardship to an extent. But the real remedy lies only in a guarantee of employment. This employment guarantee becomes necessary and important in the context of increasing pauperisation of the rural people, occasioned by displacement from land, deforestation, large scale drought etc.

123. We, therefore, recommend that the "right to work" which now figures as a Directive Principle of state policy in our Constitution should be included as a Fundamental Right under the Constitution. This should be followed by a Central Legislation guaranteeing employment to all adults who are in need of employment and are willing to work. The law can be on the lines of the Employment Guarantee law of Maharashtra and should be applicable to the whole of India, in both urban and rural areas. While all existing employment schemes like NREP and RLEGP can be pressed into service for providing employment under the proposed law, the nature of schemes need not be confined to earth work, road making, stone breaking and the like but should be imaginatively drawn up to suit local needs and local resources. In the drawing up of these scheme, the local people, and more particularly the women, should have a predominant voice. Activities relating to maternity welfare, child care, nutrition, education,

problems, should be given priority.

13. The State should provide credit to women, and small consumption loans, for investing in bettering their working conditons.

14. A comprehensive Health and Safety Act should be evolved and enacted. This Act should give the workers:

(1) right to information about chemicals and work process at the work-site.
(2) right to inspect work-sites
(3) right to demand guards for machinery, monitoring and controlling levels of dusts, fumes and fibres in the work atmosphere.
(4) right to demand personal protective equipment, and
(5) right to stop work if the conditons. are found unsafe.

This Act should be evolved in consultation with workers, trade unions and concerned voluntary agencies.

Introduction of new technology

15. Before introducing any new machinery, equipment or process, these should be screened and approved by representatives of women workers involved in that particular occupation where these are to be introduced. The women workers should have statutory rights to screen and approve new machinery, equipment or process, or any changes in the existing ones.

Priorities in research

16. The Indian Council of Medical Research, National Institute of Occupational Health, National Institute of Design, and such other organisations, should undertake occupational health studies of women's. These should be done with a view to developing simple preventive and protective mechanisms and machines acceptable to workers which would reduce health problems.

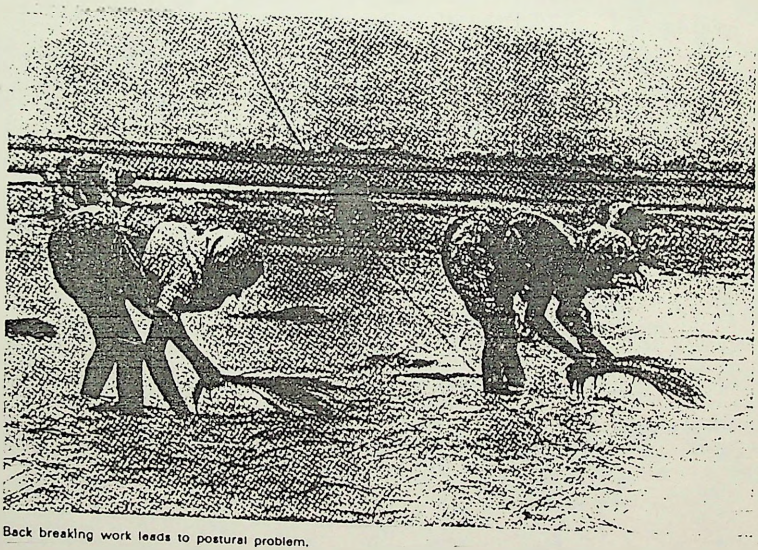
Special emphasis must be placed on the ergonomic aspect of women's work, including postural problems. Innovation in the production processes which could reduce health problems should be examined, with workers guiding and advising throughout, and such innovation be recognised and rewarded.

Technology Related Recommendations

77. We can summarise here some criteria for scrutinising the potential negative and positive effects of technology on women and their health:

1. All technologies which are labour-displacing must be rejected a priori.
2. All technologies which are likely to take over tasks currently pverformed by women (for wages or self-employment) and, therefore, likely to displace them, must be placed under women's control by:

   a) Training women in its operation and maintenance;
   b) Providing credit facilities to women only for its acquisition;
   c) Being designed for women, with their participation.



Back breaking work leads to postural problem.

3 All technologies which are likely to directly and indirectly increase women's workload must be accompanied by other technologies or measures to ease or eliminate these side effects. In other words, systems approach should be used to develop packages, rather than the current uni-dimensional approach. These multi-faceted packages must be gender-sensitive and women-biased.

4 The development of new technologies for traditional, or even modern occupation, must be prioritised, beginning with women's occupations. In other words, technology development must be selective, designed to impact positively on women's work, whether wage-work or non-wage work.

5 Development of simple or appropriate technology in the form of tools, implements, and protective devices, to remove or reduce the work-related hazards faced by women, must be given top priority and taken up on a war-footing. Mechanisms must be created for involving the women themselves in the research and development process, so that the results are appropriate and useful to women.

6. In the specific area of health technology—particularly contraceptives and sex-determination techniques—strong and immeditate steps must be taken to withdraw or ban such technologies where they are actually damaging the health of already vulnerable poor women. Measures for women's education and health promotion must be strengthened.

7 Priority must be given to the selective or preferential training of women in new areas of technological development. Schemes like TRYSEML and DWCRA—can readily be utilised for this purpose.

8. An advisory committee, with some power of veto, must be set up at Central Government level to monitor the impact of technology on women. The Committee should also actively identify and promote the areas for research and development of pro-women technologies.

9. Existing technologies, which are not appropriate to women, though they are almost exclusively utilised by women (sewing machines, table heights, cashew nut sifters, etc.), should be redesigned on a priority basis. The redesigning should be based on women's anthropometric measurements.

10. Thirty-five per cent of all the research and development funds of national research and design institutes should be reserved for occupational health studies of women's work and working out changes in these for the convenience of women workers.

Recommendations Related to Future Research Areas

1. Multi-centred studies of health problems of women workers in specific occupational groups should be undertaken by the Indian Council of Medical Research (ICMR) on a priority basis. These studies should cover:

(a) the occupation related health problem—direct and indirect.
(b) the general health problems of women workers.
(c) special stress should be on the effects of the triple burden on women.

2. National Institutes like the ICMR, ICSSR and other bodies should give priority to research on health problems of the unorganised labouring women. It is a pity that a leading institute like the ICMR does not even have a women's cell to look into the health problems of half the country's population. However the present tendency of thrusting research related to women to a small cell is also questionable. This has implied in practice that the small cell conducts studies specifically on women, while the major portion of the personnel, research projects and finances of the institutes focus on men. In fact, what should happen is that while the entire institute, say, the ICMR or the National Institute of Occupational Health (NIOH)

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4TH WORLD CONFERENCE ON WOMEN
BEIJING, 1995

COUNTRY PAPER
INDIA

(A DRAFT)

DEPARTMENT OF WOMEN AND CHILD DEVELOPMENT
GOVERNMENT OF INDIA
1994

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FOREWORD

Over the last few decades, concern for gender issues and working towards women's empowerment has become central to the development effort. This is reflected in several documents, initiatives and interventions of the Government and Non-Governmental Agencies, internationally, nationally and at local levels.

2. While acknowledging the unprecedented sensitisation that has thus been achieved, there is yet a need to reaffirm India's enduring commitment to continue working in this direction. The Country Paper brings out the key areas in which attention needs to be focussed by all actors in the field.

3. I place on record the contribution made by the National Preparatory Committee and the Working Groups constituted by the Department of Women and Child Development in Government of India. They have provided valuable inputs, which have enriched the contents substantially. There have also been informal consultations with interested persons and NGOs, which have been extremely useful. It has thus been possible to imprint on the Paper the different and rich nuances of our socio-political fabric. I would like to thank in particular Smt. Padma Seth, Member, National Commission for Women, Dr. Devaki Jain of the Institute of Social Studies Trust, Smt. C.P. Sujaya of the Indian Administrative Service, Smt. Annie Prasad, Member-Secretary, National Commission for Women, Smt. Sarla Gopalan, Adviser, Planning Commission, Smt. Padma Ramachandran of Institute of Urban and Regional Development, Trivandrum, Dr. Hemalata Swarup of All India Women's Studies and Development Organisation, Kanpur, Dr. Aparna Basu of the All India Women's Conference, Smt. Armaiti Desai of the Tata Institute of Social Sciences, Bombay, Smt. Kamla Bhasin of Jagori, Smt. Malavika Karlekar of Centre for Women's Development Studies and Smt. Suneeta Dhar, a women's activist. Several other academicians, activists, NGOs and the officers of this Department have also contributed to the preparatory processes. Particular mention needs to be made of the contribution of Shri S.K. Guha of the Department. The draft paper is thus the outcome of collective efforts, without which it would not have been possible.

4. It is hoped that the draft Country Paper will act as a nucleus around which wider and more broad based debate can take place during the course of the next few months so as to enable the Government to prepare its final paper for presentation at Beijing and for strengthening the core elements of the Platform of Action.

Lata Singh

(LATA SINGH)
SECRETARY

Dated : 3rd June, 1994

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4TH WORLD CONFERENCE ON WOMEN, BEIJING, 1995
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EXECUTIVE SUMMARY

As human development moves centre stage in the global development debate, gender equality and gender equity are emerging as major challenges. Gender discrimination, though amongst the most subtle, is one of the most all-pervading forms of institutionalised deprivation.

From Mexico to Copenhagen, on to Nairobi and finally to Beijing, is merely two decades of contemporary social history. However, if one looks at the history of the struggle for women's rights, both in India and the world, its constitutes one of the most eventful and momentous in recent times.

Home for 400 million women, a country steeped in its plurality of traditions, customs and institutions and proud of its heritage of eclecticism, India's contribution to the global women's debate has been righ, diverse and in many ways, unique. The principle of gender equality has been basic to Indian thinking for over a century. The nineteenth and early twentieth centuries saw a succession of women's movements, first around burning social issues like women's education and widow remarriage and then around the freedom struggle itself. The Constitution of India, adopted in 1950, not only grants equality to women, but also empowers the State to adopt measures of affirmative discrimination in favour of women. The Constitution further imposes a fundamental duty on every citizen to renounce practices derogatory to the dignity of women.

In 1971 the Government appointed a Committee on the Status of Women in India. It had eminent representatives of the women's movement and raised basic questions about the socialisation processes inherent in a hierarchical society, about the resource, power and asset distribution patterns and diverse cultural values of the country. A significant outcome of these broad policy debates in the seventies was a shift in recognition from viewing women as targets of welfare policies in the social sector to regarding them as critical groups for development. This recognition was clearly reflected in the 6th Five Year Plan (1980-85) which contained for the first time in India's planning history, a chapter on women and development. It conceived of a multi-pronged strategy as essential for women's development - a) employment and economic independence (b) education; (c) access to health care and family planning; (d) support services to meet the immediate gender needs of women and (e) the creation of an enabling policy, institutional and legal environment. A separate Department of Women and Child Development was set up in 1985 under the newly created Ministry of Human Resource Development. The decade snice Nairobi has been the growth of new institutions to interact and to add to the network that today comprises India's National Machinery.

Present status of Women

The 1991 Census counted 407.1 million females against a total population of 846.3 million, with a sex-ration of 927.

The 1991 age structure of female population has shown a shift from the very high proportion of children into a higher proportion of adults in the working age group. This pattern of change is similar for both males and females.

The country has taken big strides in the first half of the twentieth century towards elimination natural calamities like famine and fighting communicable diseases that took a heavy toll of life. The development of health facilities and establishment of Primary Health Centres in rural areas provided the much needed health

services. The Family Welfare Programme was also launched to check population growth. Government took a number of steps to improve the health status of vulnerable groups, like women. A major initiative was the launching of the Integrated Child Development Services Scheme (ICDS) in 1975-76. By September, 1993, 16.3 million children and 3.2 million mothers were benefiting from it. It has had a significant impact on the nutrition and health status of women. The cumulative impact of all these measures has been to reduce mortality rates. Female mortality has come down from 12.3 during 1980-82 to 9.8 during 1989-91, while infant mortality has come down from 110 to 1984 in the same period. Female life expectancy has risen fast to overtake that of males. During 1986-90, life expectancy was 58.1 years for females, as against 57.7 for males.

Traditionally, girls in India are married at a very young age, often before attaining puberty. However, the mean age at marriage has been rising significantly and was 19.5 years in 1991 as compared to 18.3 years in 1981. The population of India has been growing at around 2% or more per annum since the decade ending in 1961. The fall in birth rate has been slower than the fall in death rate. Reduction in fertility is also at a relatively slow pace. The crude birth rate which was very high at 50 per thousand population in the early part of the century, declined steadily though slowly and in 1989-91 stood at 34. The general fertility rate for 1979-81, which was 138.9 births per 1000 females in the reproductive ages, declined by about 10% to 123.2 by 1989-91. The urban rates declined faster than rural rates and in 1991, they stood at 93.3 and 127.2 respectively. The age specific fertility rates also declined for all ages between 1980 and 1991.

Despite intensive efforts to improve literacy, it is low. The sex differentials are very pronounced. While the male literacy rate in 1991 was 64.1%, female literacy rate was 25% lower at 39.3% Rural urban and regional disparities continue to be wide vis-a-vis women's literacy.

Girls enrolment in schools has greatly increased at all levels. The percentage of girls in total enrolment has also improved. Though school enrolment ratios have been rising, the problem has been that of high drop out rates among girls.

Employment of women is an index of their economic status. The work participation rate of females has risen steadily from 14.22% in 1971 to 19.67% in 1981 and to 22.27% in 1991.. During the 1991 Census, conscious efforts were made to count women workers more completely and remove their invisibility. Out of the 22.27% female work participation in 1991, main workers contributed 16.03% and marginal wokers 6.24%. It is significant to point out that women constituted 90% of the total marginal workers. Of the total employment of women, the organised sector employment formed only 4%. A matter concern is the unemployment rates for female workers in recent years. The rate of unemployment is more significant for urban females at 4.7% compared to 0.3% for rural females.

India's response to the Forward Looking Strategies for the year 2000 adopted at Nairobi (1985-94) : Policy Initiatives

Government has taken several initiatives to improve the status of women.

The National Perspective Plan (1988-2000) is a set of recommendations aimed at the welfare and development of women, guided by the principles relevant to the development process. While some recommendations are in the process of implementaion, others are being processed for acceptance "Shramshakti" (1988) — The report of the National Commission for Self Employed Women and Women in the Informal Sector, examined all related issues concerning women work force in the informal sector and made valuable recommendations for improving their status.

The National Plan of Action for the Girl Child (1991-2000) was formulated for the SAARC decade of the girl-child and built upon a strategy of ensuring survival protection and development, with a special focus on the adolescent girl-child. The National Expert Committee on Women Prisoners (1986) studied the conditions

of women prisonersin the criminal correctional justice system and made a series of recommendations suggesting legislation, custodial, correctional and prison reforms relating to women prisoners. Their implementation is being monitored by the National Commission for Women. The National Nutrition Policy (1993) suggests short term and long term measures necessary to improve the nutritional status of the country, especially women and children. It is in the process of operationalisation.

The 72nd and 73rd Constitutional Amendment Acts of,1993 mark historic events in the advancement of Indian Women as they ensure them 1/3 of the total seats and positions of chairpersons in rural and urban elected bodies. About 1 million women are estimated to emerge as leaders/decision makers as grass-roots levels; of these 75,000 will be Chairpersons in the rural areas.

Programme Interventions

Under various poverty alleviation programmes of the rural development sector, 40% of benefits have been reserved for poor women, whose family annual income is about Rs.6,000 — Rs.11,000. In education, women's equality is a thrust area. The recent EFA (Education For All) Summit witnessed a commitment at the highest political level to increase the investment on education to 6% of GDP. A Legal Literacy programme was taken up in 1992 when the National Machinery brought out a Legal Literacy Manual for Women. This is a series of illustrated booklets presented in simple language so that even the semi-literates and neo-literates are able to understand them.

For the first time in the history of demographic record of India, an attempt was made to capture women's work in the informal sector in the 1991 Census. Welfare and Support Services include hostels for working women, creches for children and short-stay homes. Government also administes the world's largest child development programme, the ICDS.

To effect a change in traditional attitudes, integrated multi-media campaigns to project a positive image of women and the girl-child to the community have been launched. To sensitise planners, policy makers and other implementing agencies, a country wide sensitisation, orientation and training programme has been taken up since 1991. Special campaigns to combat atrocities against women have also been initiated.

The 8th Five Year Plan has adopted the strategy of employment and income generation for mainstreaming women into national development; accordingly, both women specific and women-related departments have re-set their priorities towards creating employment-cum-training-cum-income generation activities for women. Simultaneous efforts to boost employment for educated unemployed have also been initiated to create 3 million additional jobs. Of these, women's claim will be to the extent of 30%. To enable rural women to have control over their savings and financial resources, the Mahila Samriddhi Yojana of 1993 offers rural women facilities of small deposits, with attractive rates of interest, through the existing extensive network of rural post offices. The National Credit Fund for Women set up in 1993, extends credit to poor women at reasonable rates of interest through NGOs working in rural areas, with the objective of boosting self-employment and micro-enterprises.

A special programme for adolescent girls has been launched in 1993 and is aimed at school dropouts, with a view to meeting their nutrition, health, awareness generation, self-image improvement, vocational training and employment related needs.

Institutional Support

The National Commission for Women, set up in 1992, has a mandate to study and monitor all matters relating to the Constitutional and legal safeguards provided for women, review existing legislations, suggest amendments and look into complaints involving deprivation of the rights of women. Similar Commissions are also being set up in the States.

A [illegible] cell monitors 27 beneficiary schemes which are women-specific and women-related to report directly to the Prime Minister's office. It also monitors indicators relating to 'Equality of Women' in the identified [illegible] under the 20 point programme.

A National Resource Centre for Women is likely to be formally set up soon and will act as an apex centre for gender issues, including efforts of sensitisation, training, evaluation, documentation, information dissemination and networking. There are reportedly very few such centres at the national level, world wide and none in South Asia.

Gender Issues in Development Women in Extreme Poverty

Women still constitute the largest section of the population living in absolute poverty and they represent the poorest of the poor. It is widely recognised that women as a group and poor women, in particular have been adversely affected by the process of growth, economic transformation and development difficult.

However, women are critical actors in the process of moving their families out of poverty. Therefore, policies and programmes need to be designed with a deeper understanding of the characteristics of women in poverty and the processes that lead to intensification of poverty. Efforts to improve the position of poor women have to focus on them as economic actors within a framework of their other multiple roles, as well as the total socio-political environment. Extreme poverty by definition, implies low absorptive capacity for outside interventions. It must always be remembered, in the context, that the poorest families are the most dependent upon women's economic productivity and hence the urgency and need for special attention.

Some women in extreme poverty are visible as specially vulnerable groups e.g. abandoned, widowed or divorced women, sick, disabled or aged. These women are doubly vulnerable, being very poor and also having to face institutionalised discrimination in various areas, including intra-household distribution of resources.

A multipronged approach based on appropriate gender disaggregated data needs to be initiated to set right the balance of gender inequity in development.

New Economic Policies and their impact on women

India has embarked upon a course of restructuring its economy and development policy framework since 1991. The new economic policies consist of both stabilisation measures as well as the Structural Adjustment Programme (SAP). An assessment of the impact of the policies is made difficult by the fact that many of the policies, specially with respect to the SAP, are still unfolding and there is invariably a time lag of 2-3 years in availability of data for analysis. At present, there is very little disaggregated date, gender-wise, available from the national statistical agencies. The complexity of assessment is further compounded given the multiplicity of women's roles.

While stabilisation and structural adjustment policies entailing budget compression, reduction of Government expenditure and devaluation might in the end result in high transitional costs on the poor, such costs tend to be the most for poor women. The nature of such costs tend to be in terms of short-term drop in employment, greater workload and squeezing out of real incomes forcing women to seek alternate survival-strategies. While expansion of employment opportunities tend to take place in export oriented industries, cash crop cultivation, agro-business, finance and insurance sector and high tech areas, traditional sectors tend to diminish in importance. As is known, these traditional sectors are amongst the largest employers of women.

It is, therefore, necessary to integrate the concerns, needs and anticipated threats to poor women, with the basic development objectives of stabilisation and structural adjustment policies and to continue to

strengthen the social safety net which the Government has already taken up as a priority measure. Recently, there has been a dramatic, over four-fold, increase in the outlay of anti-poverty programmes alongwith special components being reserved for women in all these programmes. Alternative systems of women friendly informal credit, savings and training and employment schemes have been evolved, child care services are being extended, a National Creche Fund has been set up, hostel facilities for working women are being extended. A National Renewal Fund has also been set up under the Social Safety Net Programme. It is necessary to continue to sustain and expand these initiatives and build in gender sensitivity to the entire macro-economic policy making process.

Women and Environment

The gender dimensions of the environment debate have been intensified during the last decade. Environment is seen by deprived millions and poor women among them, as a problem related to the socio-economic sphere, not degradation of the biosphere alone. They are profoundly affected by environmental degradation. Indian women have been in the forefront of environmental struggles to conserve forests, land and water and have spearheaded movements for a non-exploitative, sustainable and equitable development paradigms. Gawri Devi of the Chipko movement has attracted world wide attention.

The Planning Commission has described as a challenge establishment of patterns of resources use which would meet obligations to nature and posterity and be socially just. The problems are multifaceted, from deforestation, land degradation, floods, droughts, pollution, slums and squatter settlements to burgeoning population, loss of biodiversity, adverse climatic change and scarcity of safe water, etc. Other issues boil down to the basic ones of people's control in general, and women's in particular, over basic resources and livelihood patterns. This is validated in different sectors of ecologically degraded spaces.

Various strategies, like learning from the traditional wisdom of communities, especially women, greening of village and restoring ecological balance by women others, facilitating full participation of women in initiatives like JOINT FOREST MANAGEMENT PROGRAMME or fora like local bodies and cooperatives, must be taken up on a large scale. Women's perspective, which recognises that meeting human and social needs are an important as of the goal of economic progress, ust be brought to bear on problems of environmental distruction arising from inequitable access to necessary survival resources.

Women and health

The health situation of Indian women is intricately related to their status and affects their economic productivity as well as the performance of their biological and social responsibilities. The consequences of gender discriminatiuon are reflected in the demographic status of women, in terms of high mortality rates, especially the maternal mortality rates (MMR) the relatively low life expectancy at birth are the unfavourable sex-ratio. Other adverse indicactors like sporadic cases of female foeticide and unfavourable juvenile sex ratio show that there is a threat evident to a women's life throughout their life cycle. Even when the life is saved, women often remain under nourished and are under morbidity conditions. It needs to be understood that women's right to a healthy life is an important as their rights to life. There has been an increase in stress and strain levels faced by women due to several factors, which are exacerbated by an increasing trend of violence against women and especially incidents of domestic violence.

Reproductive patterns are the end result of economic, social, cultural and biological factorsand need to be understood in the context of the patriarchal family norms where status is attained only through fertility and male sones. Women therefore need to be seen not only merely as "targets" in the family planning programme, to extend coverage of contraception. Women need control over their fertility, sexuality and life situation, in the first place in order to be able to exercise responsible choices in the matters of parenthood.

Heterosexual intercourse appears to be the single most common mode of transmission of HIV/AIDS in India. Studies show that power-relations between partners is unfavourably tilted away from women. This effectively limits their ability to adopt strategies to prevent the killer disease.

It is important to recognise women's health needs and in the context of performance of their multiple roles. The health system also needs to become more responsive to take into account the gender and cultural dimensions in the prevention and cure of disease.

Education and women

It is now widely acknowledged that the aim of education is to empower women. During the decade 1981-91, female literacy rate has increased from 29.8 to 39.42%. The level is low and therefore effectively excludes women from political, social, economic power, as well as power flowing from information, training, skills and knowledge. Poverty, greater demand for female labour by poor households, both paid and unpaid, involvement of girls in activities necessary for the survival of their families are the primary reasons for this situation. Distance of schools, consequent problems of security, absence of women teachers and early marriages also account for non-enrolment and withdrawal of girls from school.

This major problem needs to be squarely addressed. There is also a need to meticulously review educational text books to remove gender biases/stereotypes from them so that the next generation has a more equitable view of gender roles and relationships. Further, mass based programmes like the Total Literacy Campaigns (TLCs) to which women have responded very favourably and ones focussing, specifically on women like the "MAHILA SAMAKHYA" and "LOK JUMBISH" as well as greater involvement of girls/women in non-formal and vocational education would go a long way in encouraging the spread of literacy and education.

Equality of women in decesion making

While the democratic polity of India provides the enabling and necessary conditions for greater participation of women in all spheres of human endeavour, the reality is that women's participation in decision making at all levels is still low.

There is wide acceptance of the point that women participating in public life and decision making in large enough numbers would make a significant impact. Their unique experience and perspectives would enhance and alter the way problems are looked at for they would be setting new and different priorities in implementing them in innovative and distinctive ways.

Those obstacles that do not let women participate fully have to be identified and removed. Often, structures processes and social mores are the barriers. It needs to be appreciated that the situation is slowly changing. Instances of women taking decisions which affect their lives significantly by altering the power relating between men and women for example in such areas liquor consumption are coming in large numbers. Mention must also be made of the women's movement in bringing voices of women into the political process. Yet the presence of women has not been felt strongly in structured decision making institutions settings and in key positions of power.

Political participation is broader than electoral and administrative processes. Merely increasing representation of women may not lead to greater promotion of women's interests over general interests. Nonetheless, numbers should be large at cruvial levels for significant and effective exercise of power. Women should also be equipped through suitable means to shoulder these responsibilities so that representation does not end in "tokenism". This is the light in which the 73rd and 74th Constitutional Amendment are to be seen, if their intention of women's political empowerment at the grass-roots level is to be realised.

Legal Literacy

The Indian Constitution not only prohibits the State from discrimination against any citizen on grounds of sex but at the same time empowers is to make special provisions for the well being of women. To this end, several legislations have been brought in to promote gender equality. They may be categoriesed as labour laws, criminal laws, family laws and civil laws. Some laws are not gender specific but they concern the well being of women. The National Commission for Women is tasked with the review of existing legislation to make their provisions more equitous.

It is to be noted nonetheless that the vast mass of women are poorly positioned to secure full benefits from Constitutional and other legislative provisons. This was mainly due to lack of basic awareness of law, insufficiency of legal litigation. Further, legal remedies for socially sanctioned inequities has only recently - in sociological and historical terms-been accepted as a feasible alternative in the realm of gender relations. To facilitate this process, the Government has produced a Legal Literacy Manual, which is a series of 10 illustrated, simple booklets on the rights and entitlements of women. Para-legal training, through various strategies, is being used widely to disseminate the Manual across the country. This is being broadbased.

Societal Reorientation

It would be simplistic to assume that the problem of low status of women in India is primarily attitudinal. Apparently cultural, it has a material base. Hence it is now widely recognised that societal reorieintation is needed in different sectors and at all levels.

The family is the primary and apparently a problematic site of gender subordination. Patriarchal values are constantly reinforced through tradition, religion and other socio-political institutions. Media has a critical role in the construction and promotion of gender stereotypes and negative images of women.

A societal reorientation would create a gender-just society and imply a radical transformation of all existing structures and institutions. This may come about through sensitizing of media, mass-based campaigns and well planned advocacy efforts. Advocacy envisages the need to actively propound empowerment issues for women ensuring that they remain in focus. Several individuals, Organisations and Institutions can contribute to the processes. The women's movement has been successfully advcating several crucial causes.

Appropriate orientation to gender issues and training is another strategy in changing social biases that seep into policy and programme implementation, keeping women powerless, Then existing programmes of Government and Non-Government agencies in this area need to be developed further and taken down to the grass-roots level.

The Girl Child

Despite legal safeguards, the girl-child in India has as yet not been given an equal status and needs to be seen as a special group suffering from several disadvantages. She experiences discrimination throughout her life and the socio-cultural practices make it difficult for her to overcome the handicaps posed by her unequal status. Family structures and social values function in such a way that girls grow up looking upon themselves as inferior and subservient, entitled to much less of everything than sons - less opportunity, less authority, less property, less status, less power and virtually no choices.

Despite being biologically stronger, then boys almost 1/4 of the 15 million girls born every year, do not see their 15th birthday.

Malnutrition in young girls triggers a vicious cycle of under nutrition which spans into adulthood. Girls thus fail to reach their full growth potential. Sex-bias in health care has also been indicated in seveal micro-level studies

Child marriage is declining. However, its persistence in certain pockets is cause for concern. Disparities in enrolment in schools between boys and girls remains. The same holds good for the drop-out rates. Even in non-formal education centres, girls form only 1/3 of the total enrolment. A large number of girls work for long hours both at home and outside the household but their labour is acknowledged or under-reported n labour statisics.

An integrated approach towards holistic development of the girl-child is essential for the creation of a new environment in which she can be valued and nurtured.

Violence against Women

Over the last decade, there has been a growing awareness of the phenomenon of violence against women and children. Violence encompasses not only physical acts, but also innumerable and gestures, innu endos, familial and social responses and so on, which colour perceptions of how women and girl children are viewed.

The family is the arena for much of the aggression against women. An extreme case in point is that of "dowry death". Sexual harassment and rape are other instances of the increasing trend of gender-related violence. Violence per se is a humen rights issue. It is also to be viewed as one of the serious impediments to participation of women in the processes and fruits of development. "Battered dreams" can only push half of humanity into depths of degradation. Fear of men and fear of violence creates a vicious inter-generational cycle of deprivation.

Government and women's groups have now become active in not only raising awareness on these issues but also in working for change. Important legislative reforms, innovations in the structure of the police force, measures to sensitise the law enforcement machinery, coupled with media coverage on events as well as on corrective action has led to a hitherto taboo area gaining important in discourse and action. Such endeavours are being supported and strengthened.

Challenges and Opportunities

Both the Government and the Non-Government sectos, are constantly aware of the challenges ahead. Absolute poverty and the gradual feminisation of such poverty are the most daunting of our challenges. The persistence and reiteration of patriarchal values exacerbate the deprivation of poor women. Women's access and control over factors of production and social services are minimal. Degradation of the environment, with its negative impact on women, calls for increased participation of women in environment and natural resources management. Gaps in health care and the process of enlarging women's reproductive choices will need to be addressed. Women will have to be enabled to participate more actively in decision making structures and processes. Societal norms which perpetrate discriminatory beliefs and practices call for a complete overhaul. Mobilizing women, making them aware of their rights and entitlements, sensitising the administrative machinery and reviewing legislation to make them more effective, are amongst the areas to be focussed on.

These considerations lead to a new question. Are existing tools of evaluation and measurement adequate to capture the essence of what is being advocated as development with gender equity? There is today an increasing awareness that one of the touchstones of successful and sustainable development is the extent to which it leads to the empowerment of women. By implication, therefore, it would be necessary to devise appropriate tools to measure it.

In working towards a better world for women, the national machinery for women has a central role to play. It has always been Government's conscious policy to work closely with the Non-Governmental sector, the women's movement and activists. This has proved mutually enriching. Exploring the scope for further deepening

and interweaving of such strategies and efforts into ongoing policies and programmes, is always high on the agenda.

If development is about people, it is essential to increase their capabilities to develop themselves. If women are in a state of economic, social, political and knowledge disempowerment, the imperative is to reverse this process. Instead of just adding a gender agenda to a development plan, drawn up by the gender insensitive, the goal should to redraw it from the women's perspective. it is this empwerment strategy which is today emerging as an almost unique Indian response to the challenges of equality, development and peace. If women are to be empowered, it is necessary to provide an expanding network of support services so that they are freed from some of their gender shackles. If women are to be economically empowered, they are to be economically empowered, they are to be provided with alternative forms of informal credit, training, employment, visibility, management skills and social security. If women are to be politically empowered, the immediate imperative is to make a reality of the different forms of affirmative discrimination, already in position, so that their vocies are heard. If women are to be given access to knowledge and resources, they should be empowered to demand them.

In this scenario, there is tremendous hope and expectation of the emergence of a re-ordered world, touched by the principles of dignity, humanity and gender equality. The ambience at this national and international level provides the appropriate opportunities that will make the Platform of Action to be adopted at the World Conference on Women at Beijing, in 1995, eminently achievable.

SCIENCE AND TECHNOLOGY FOR WOMEN

ENTREPRENEURSHIP HOLDS THE KEY TO LEADERSHIP

BY : C.P. JAYALAKSHMI

Women in India are vastly under-represented in all areas of Science and Technology. "This deprivation amounts to neglect of 50% of the human potential, which we can ill-afford," says Lydia Makhubu, a member of the Gender, Science and Technology Network, who is an organic chemist and vice chancellor of University of Swaziland (Africa).

In September 1995, over 30,000 women from the world over, will meet to discuss issues relating to women on peace, development and equality. The idea is to integrate development into the lifestyle of the common people with the priority of achieving a level of equality that has been committed by the United Nations in 1975 when the First World Conference on Women was held.

In the years that have seen information age leap by geometric proportions, Science and Technology has been playing a very key role in inventions and technology developments that have an impact, the likes of which has never been felt before.

Thus, on the one hand there is a glut of information and technology development for reducing drudgery and improving the lives of humans, while on the other, more and more people in the developing world are becoming poorer and facing loss of livelihoods. This is a direct result of mechanisation which demands consolidation of lands and exploitation of the poorest of the poor, hi-tech wars and pollution.

Does Science and Technology hold the key to overcome the very problems that it has given birth to? This is a topic of concern for the United Nations supported institution, Asia Pacific Centre for Technology Transfer (APCTT), which has shifted its office to New Delhi from Bangalore.

A focal area of APCTT is in increasing the role of women in technology transfer in the Asia Pacific region. In an address to a gathering of women scientific personnel from the Asia Pacific region, APCTT Director Dr. K.V. Swaminathan said, "it is important for women to feel strong about their abilities in using and managing new and high technologies".

Combined with technology transfer facilities, we should have entrepreneurship development as a key input in order to benefit women and that gender "indifferent" entrepreneur will result, when women have access to education and explosure towards use of technologies.

Natural Resources Management is another area where women have traditionally had more knowledge and skills. For example, the fishing community have women involved in managing, marketing and preservation of the resources.

Another example where women have played a very key role but unfortunately not been recognised well enough, is in the area of sericulture. The world's best silk comes from China where the world conference is proposed to be held and sadly the status of being sericulturist for a woman, has been relegated to a secondary position of a mere supporter without involvement in decision making.

This reflects in many ways that the dominant practice of women not being in the control of most of the systems of business and means of production for capital formation, has perhaps put a different perspective to development, which prioritises profits only as the key motivation to success.

Contrastingly, a women leader, being sensitive to Nature and who has a different vision of 'Management', would like to view a business as one which should last long, be peaceful and should have sustainability over several decades. The female view that one strengthens oneself by strengthening others is finding greater acceptance and female values of inclusion and connection are emerging as valuable leadership qualities.

Women leaders would have to now think beyond farming, crafts and skill building. The income generation activities which look at an enterprise for not only self employment and leadership development, but also to provide empolyment to many women, needs to be promoted.

The Government of India has initiated some schemes like the Mahila Udhyam Scheme to develop the potential of women entrepreneurs which is being taken up by many competitive and trained women who would like to venture into the world of business. However, much is needed in this area of credit and banking facilites for women, particularly from the rural areas who wish to set up micro-enterprises.

In order to provide the training backup, institutions like Entrepreneurship Development Institutes, at Ahmedabad, Delhi, Bombay etc. and a Women's Association of Entrepreneurs from Karnataka called AWAKE has been providing training modules and other technical advise. This initiative has helped new businesses to be established by women.

Not only has such efforts being made in India but also in our neighbouring countries like Bangladesh and Pakistan, where the women have had axcess to technologies with the support of agencies like APCTT and Women in Development (WID) programmes of several bilateral support agencies.

Says an official of the WID in India, 'The status of women has changed because they had greater skill and knowledge. This was primarily due to the fact that information and training was axcessable to women'.

Who all can be successful to become entrepreneurs ? It is a question that has haunted the minds of several non-governmental organisations who have been involved in income-generation and skill development activities. One of the bigest constraints on application of science and technology for women has been the lack of marketing support.

Since most women do not own lands they do not get an opportunity to avail credit facilities from the banks in order to invest for businesses which could scale-up to be a successful enterprise. This is one of the key areas of concern for AWAKE, which is encouraging entrepreneurs.

Technology transfer in micro enterprises as has been promoted in several areas of the country and the Asia Pacific region involves low technology, the possibility of catering to the local markets but which gets limited in its outreach because it is not growth oriented.

In contrast, a small scale sector caters to a larger market, is essentially composed of high technology inputs and has scope for growth. It also permits the business enterprise to be upgraded in technology from time to time as per the market needs.

Women leaders have been found to be better managers because they found that once they have been exposed to the various parameters, they take the jobs very seriously.

If women need to come to the forefront of use of science and technology then they must shun their inhibitions. Entrepreneurship holds the key to leadership for women. It will also provide an opportunity for women to be assertive in the business of nation building exercises and thus prioritising sustainable development as the key to future of this earth.

-ends-

Community Health Cell

From: "Ruth" <ruth@pir.vsnl.net.in>
To: <sochara@vsnl.com>; <christya@actionaidindia.org>; <lciain@bgl.vsnl.net.in>; <bmathew@nls.ac.in>; <anitacheria@mantraonline.com>; <sheelar@lawyer.com>; <visthar@vsnl.com>
Sent: Friday, March 05, 2004 3:55 PM
Subject: invitation- CEDAW Training of Trainers 12th to 16th March 2004 at UTCBangalore

Dear
Friends
Dt.: 12th Feb. 2004.

SOUTHERN REGIONAL TRAINING OF TRAINERS ON THE CONVENTION ON THE ELIMINATION OF ALL FORMS OF DISCRIMINATION AGAINST WOMEN (CEDAW) FOR SOCIAL ACTIVISTS AT BANGALORE
12th to 16th March 2004

The National Alliance of Women, India, is pleased to announce the Southern Regional Training of Trainers for the social activist on the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) for Social Activists at Bangalore.

The National Alliance of Women, India is a coalition of women's groups and organizations in India. It basically evolved as an umbrella organisation for the several hundreds of groups that came together under the Pre-Beijing exercise that prepared the grass root women to participate in the 4th World Conference on Women at Beijing. One of its major objectives is to monitor Government's Commitments in implementing the Platform for Action with special focus on CEDAW and other UN Conventions and to create awareness amongst the social activist and lawyers on the principles of the Convention.

This training is supported by The International Women's Rights Action Watch- Asia Pacific (IWRAW -AP), which is a regional organisation based in Malaysia. It works through collaborative projects aimed at strengthening domestic application of Human Rights norms in relation to women's rights. One of its key strategies is to monitor and facilitate the implementation of the UN Convention of the Elimination of All Forms of Discrimination Against Women.

-2-

BACK GROUND AND RATIONALE FOR TRAINING

We all know that CEDAW is the convention on the Elimination of All Forms of Discriminations Against Women. Among the International human rights treaties, the Convention takes an important place in bringing the female half of humanity in to the focus of human rights concerns. The Convention is an instrument to protect and promote equal access and

enjoyment of the rights for women, through law and policy reforms The Convention is a unique instrument as it is formulated on the principles of equal rights between women and men in the private and public spheres. It recognizes the fact that women's unequal position is socially constructed because it draws attention to discrimination against women. It further obligates governments to mandate development for women through a framework of legal rights. Hence provides a mechanism for accountability.

The training advances the argument that development for women has to be promoted within a rights framework and that the Women's Convention is one instrument that can be used effectively as a frame work for litigation and development policy.

The training programme proposes to introduce International standards and feminist perspective as a basis for claiming women's rights. The legitimizing of international norms for the actualization of women's rights in the country is critical because of the need for universal minimum standards of Human Rights. This is so especially in the light of rising fundamentalism in our country. We need to engage in the process of evolving core set of Universal norms and standards for women's rights. If we do not do this, rights for women will be subject to changing ideologies and shifting economic and political context.

The main focus of the training would be to equip activist with advocacy skills through the use of theoretical and practical knowledge and techniques on the issues of gender and the principles of CEDAW. The training will be participatory in nature and with the help of case studies.

-3-

OBJECTIVES OF TRAINING

General Objectives :- To provide knowledge and develop skills in the application of the principles of the Convention on the Elimination of All Forms of Discrimination against Women for social activist in order to advocate the advancement of women utilizing the Convention.

Specific Objectives

? Raise awareness of the activists of the advantages of basing the struggle for women's human rights on the feminist principles and international human rights norms, with specific reference to the Convention on the E[illegible]

Women.
? Create clarity on key concepts and principles pertaining to women's rights advocated by the Convention: equality, discrimination and State obligation under treaty law.
? Create familiarity with the obligations that the state has undertaken through ratification of international human rights treaties and by being a party to the recommendations and plans of actions of the UN World Conferences.
? Develop skills in identifying the discriminatory aspects of the law and the legal system in order to develop a comprehensive approach to activism.
? Provide knowledge and develop skills necessary for the practical application of the principles of the Convention to enable women to claim their rights
? To provide the opportunity for networking in order to undertake collaborative advocacy.
? To develop a pool of trainers in order to ensure that knowledge on CEDAW reaches more people and to ensure that the norms of CEDAW will the standard for women's rights activism.
? Develop plans for effective use of the Convention.

NUMBER & CRITERIA FOR SELCTION OF PARTICIPANTS:- 30 only

? The participants should be an activist engaged in women's rights and should be comfortable in spoken and written English.
-4-

? Must have a fair knowledge of and sensitization towards gender and Human Rights concerns.
? Be pro-active and be able to translate acquired knowledge in day to day activities.

DATES OF TRAINING :- 12th to 16th March 2004

PROGRAMME and
ACCOMMODATION (for the outstation participants) is arranged at:

UNITED THEOLOGICAL COLLEGE (UTC)
NO.67, MILLERS ROAD,
(BEHIND CANTONMENT RAILWAY STATION)
BANGALORE - 560 047,
PHONE: 23332844 / 23333438

TRAVEL AND ACCOMODATION

Accommodation will be provided for the outstation participants and II class train fare / bus fare will also be provided.

The Out station Participants are required to check in on either 11th March or by the morning of the 12th March, 2004. The rooms will be booked for only five days from 12th to 16th March, 2004. The participants are required to confirm their participation in advance over the phone.

Thanking you and looking forward to your reply by phone: 080-26630262 /26642053 and E-mail: ruth@blr.vsnl.net.in, Fax No. 26630262

Yours Sincerely,

RUTH MANORAMA
President, NAWO.

3/5/04

1/12/01 10:04 AM

Re: [Fwd: HNPFLASH extras: Lesotho MOH .. R End of Conference, Widows Conference]

Subject: Re: [Fwd: HNPFLASH extras: Lesotho MOH Position, PHR End of Conference, Widows Conference]
Date: Thu, 11 Jan 2001 13:01:17 -0000
From: "Karen Garvin" <karengarvinpr@beeb.net>
To: <sochara@vsnl.com>

Many thanks for your interest in our forthcoming conference. Please find attached an information sheet, conference programme and a registration form. If you are interested in attending please can you complete and return the registration form as soon as possible.
With best wishes
Karen Garvin
Conference Organiser
----- Original Message -----
From: Community Health Cell <sochara@vsnl.com>
To: Karen Garvin <karengarvinpr@beeb.net>
Sent: Thursday, January 11, 2001 9:03 AM
Subject: [Fwd: HNPFLASH extras: Lesotho MOH Position, PHR End of Conference, Widows Conference]

> *Dear Karen Garvin,*
> *We should be obliged if you could send us information concerning widows*
> *in South Asia or where we could get this info from.*
> *Thank you,*
> *Thelma Narayan*
>

Audience -flyer.doc	**Name:** Audience -flyer.doc **Type:** Winword File (application/msword) **Encoding:** base64
Registration form.doc	**Name:** Registration form.doc **Type:** Winword File (application/msword) **Encoding:** base64
Conference Programme.doc	**Name:** Conference Programme.doc **Type:** Winword File (application/msword) **Encoding:** base64

Widows Without Rights

Conference Programme

Date: 6 & 7 February '2001
Venue: Friends Meeting House, Euston, London

DAY 1: Tuesday 6 February

09.30-11.15 **Introductory presentations:**

- Video of Graça Machel, Patron of EWD
- Welcome from Margaret Owen
- War Widows - Nekibe Kelmendi, Minister of Justice, Kosova
- Widows in Action – Dr Eleanor Nwadinobi, Nigeria
- Widows in Action – Lakshmi Murthy, India

11.15 – 11.30 **Coffee break**

11.30 - 12.30 **Widows stories:** a selection of widows speak about the personal experiences they have had to face.

12.30 – 13.45 **Lunch break**

13.45 – 15.15 invited participants talk for 10 minutes each on the activities and experiences of their organisation.

15.15 – 15.30 **Tea break**

15.30 – 17.30 **WORKSHOPS:**
divide in to 5 groups to discuss the following topics

- Widowhood & cultural practices
- Poverty: inheritance & human rights
- Stereotypes of widows
- Widows and old age
- Child widows and children of widows

17.30 Close of session

DAY 2: Wednesday 7 February

09.30 **Presentations:**

- **Widows in India**: presentation by Dr Marty Chen, Harvard University (20 mins)
- **Widows & AIDS:** presentation by Bridget Sleap, PANOS (20 minutes)
- **Widows & War:** presentation by Behjag from RAWA (20 mins)
- **Widows & Law:** presentation by lawyer, Monica Elias Mhoja, Tanzania, on land and property rights etc.(20 mins)

11.00- 11.15	Coffee break
11.30 – 13.00	WORKSHOPS: Continue workshops from previous day to come up with ideas for strategy formulation.
13.00- 14.00	Lunch break
14.00 – 14.15	Patsy Robertson talks on 'How the UN works'
14.15 –15.45	WORKSHOPS: dividing into 4 groups to look at what widows want the UN, Bi-lateral donors, NGO groups Foundations and Trusts to do. Formulation of resolutions and statements.
15.45- 16.00 :	Tea break
16.00 – 17.00	Plenary session: various resolutions and statements read out and discussed
17.00:	Closing Session Goodwill Messages from VIPs read out: Closing remarks from Dr Kate Young, Chair of EWD.

Widows Without Rights

Conference: 6-7 February '2001

Conference

The conference will last 2 days broken into 7 sessions.

These will include:

- plenary talks by international activists
- oral testimonies from widows
- workshop sessions facilitated by international lawyers, widows and human rights activists to draw out the pro-widow policies that are needed

The main issues that will be addressed include:

- Widows and War
- Widows and AIDS
- Widows and the law
- Vulnerability of widows to violence & prejudice
- The image of widows

Outputs:

In order to further the cause of widows at the end of the conference we hope to be able to produce the following:

- a resolution to send to the UN Secretary General, the Commission on the Status of Women, the CEDAW Committee, and human rights committees of the UN
- a document outlining policy guidelines for agencies wishing to address widows' human rights

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☐ I/We am/are very interested in attending **Widows Without Rights**. Please reserve__ places. I enclose a cheque for £___
(Each place costs £20. Please make cheques payable to EWD).

☐ I hope to attend **Widows Without Rights.** Please can you notify me nearer the time.

Name/Title/Organisation:_____
Address:_____
_____
Tel no:_____ E-mail address:_____

Please return to: Karen Garvin, Conference Organisor, 18 Lynmouth Road, London N2 9LS.

Widows Without Rights conference

Date: 6 & 7 February '2001

Venue: Friends Meeting House, Euston, London

Widows Without Rights is the first conference to be held in London focusing on the human rights violations faced by widows in the developing world. It is being organized by **Empowering Widows in Development (EWD)**, an umbrella organisation for grass-roots widows groups in Africa and South Asia. EWD exists to bring the voices of our many members up to the highest level, so that international human rights organisations will rise to the enormous challenge of protecting widows' rights both from the actions of the state and from oppressive traditions and customs.

The conference will bring together about 20 representatives of widows organisations from South Asia and Africa, as well as some international activists and lawyers. The aim of the 2-day conference will be to:

- alert the international community to the abrogation of widows' human rights in the context of the worldwide struggle for poverty reduction and sustainable development
- to demonstrate the need to design and implement policies which are specifically formulated to support widows and their children
- to demonstrate the urgent need to utilise widows' rich experience and knowledge in policy formulation
- to strengthen the capacity and effectiveness of widows groups in developing countries

The conference will largely be organised around workshops and panels; formal speeches will be kept to a minimum. We would be delighted if you were able to join us for what we are sure will be a very informative and productive conference. Please find attached a brief outline of the conference with issues that are to be covered and a reply slip to indicate your interest. We are charging just £20 for each place, which will cover a 'working lunch' on both days of the conference and an information pack including a 10 country study researched and produced by Margaret Owen, founder of EWD. If you are not the most relevant person in your organization to attend this conference we would be very grateful if you would pass this information on to the person most involved in policy work.

If you need any further information please contact: Karen Garvin on 020 8442 1362 or by e-mail karengarvinpr@beeb.net.

Conference Management
18 Lynmouth Road • London • N2 9LS
Phone/Fax 020 8442 1362 • Email karengarvinpr@beeb.net

17

NUTRITION IN PREGNANCY AND LACTATION

Leela Raman and Veena Shatrugna

Fig. 1. Mechanism of expression of cellular immunity in malnutrition

INTROUDCTION

For most women in the underdeveloped world pregnancy and lactation are amongst the most stressful periods when she sustains a rapidly growing foetus often under hostile conditions of poverty and overwork. Thus in nutritional jargon pregnant and lactating women, besides infants and children are said to belong to the vulnerable groups. Their nutritional needs are more demanding. Ancient Indian, and other medical literature abound in advice for pregnant women to ensure her's and the baby's well-being.

The concepts of a correct diet during pregnancy and it's relationship with malformation, prematurity and small babies were in existence long before the present system of medicine came into being. However, scientific interest on the consequences of maternal malnutrition on the mother-child diad increased substantially after the experience of the two world wars. Apart from the diet, several other poverty-associated factors such as chronic infections, parasitic infestations leading to intestinal malabsorption, and closely spaced pregnancies also adversely affect maternal nutrition status. This chapter briefly discusses the nutritional needs of pregnant and lactating women and consequences of malnutrition, during pregnancy and lactation.

NUTRIENT REQUIREMENTS DURING PREGNANCY AND LACTATION

This section should be read along with Chapter 12, dealing with the recommendations of dietary allowances for pregnant and lactating women.

The basis for the additional requirements during pregnancy and lactation is discussed here.

Energy

Caloric requirement during pregnancy is increased for maintaining the growth of the foetus, placenta and maternal tissues and for the increased basal metabolic rate (BMR). The additional caloric cost of pregnancy for a 50 kg woman has been estimated to be about 75,000 kcals. The caloric needs are not evenly distributed throughout pregnancy. In early pregnancy, it is minimal but rises sharply towards the end of the first trimester and then remains more or less constant for the second and third trimesters. In the first and second trimesters, the extra energy needs are directed towards the maternal tissues i.e. expansion of blood volume, growth of tissues like breasts and uterus and laying down of storage fat. The increased requirements in the third trimester are mainly for the growth of the foetus and placenta besides some increase in maternal tissues as well. Energy requirements are also influenced by the pre-pregnancy body weight, physical activity and age. The energy requirement for a moderately active non-pregnant adult woman is about 40 kcal/kg body weight. Indian Council of Medical Research Nutrition Expert Group (ICMR 1989) has suggested additional 300 kcal per day during the 2nd half of pregnancy. WHO recommends an additional 150 kcal/day in the 1st trimester and 350 kcal/day in the last 2 trimesters.

The energy requirement during lactation is computed from the energy cost of lactation and would take into account volume of milk secreted, it's energy content and the efficiency of conversion of food energy into milk energy. Assuming an optimal milk output of 850 ml (FAO/WHO expert group,1973) and conversion efficiency of 80%, the additional intake of energy recommended during lactation by ICMR(1989) is 550 kcal per day for first 6 months. Since Indian women continue to lactate beyond 6 months

with reduced milk output, an extra allowance of 400 kcal per day was recommended for the period 6 months to 1 year. This computation takes into account fat deposited during pregnancy.

Protein

The additional protein requirement during pregnancy is mainly due to accretion of protein by the foetus which is around 1000 g, for the entire pregnancy. For this additional daily requirement, allowance of a good quality protein like 10 g milk or egg protein per day has been suggested. In terms of cereal-legume based Indian dietaries with NPU of 65, this will be about 15 g per day during pregnancy. Women who are chronically undernourished and underweight, those with infections and infestations and adolescent pregnant women, may require extra proteins and calories for repletion of tissue proteins to enable them to withstand the stress of pregnancy and lactation.

Human milk has a relatively low casein content (20%) with a high whey protein fraction. Besides this, milk-specific protein, alpha globulins and IGA are present in large amounts. The protein content of milk is not influenced by maternal diet and is remarkably low in human milk (around 0.8–1.2 mg per 100 ml) with no significant difference between well-nourished and malnourished lactating women. Nitrogen balance studies in lactating American and Indian women show that while the American women are in a positive nitrogen balance, Indian women are in a negative balance during lactation. This suggests that in the undernourished Indian women the tissue proteins are being broken down for extra energy needs.

Though supplements of extra energy and protein during lactation has been found to increase milk volume, there is concominant decrease in protein concentration resulting in very little alteration in the total protein content of milk in 24 hours.

The protein requirement for lactation has been calculated on the basis of the quantity of protein in milk after the first month (1.15 g per 100 ml) and conversion efficiency from dietary protein. Since tissue protein accretion in lactation is insignificant, this is not used for calculating extra requirement for lactation. Based on the optimum milk volume of 850 ml per day, WHO suggested an extra protein intake of about 16 g per day during first 6 months of lactation, 12 g per day during the second 6 months and 11 g per day thereafter. ICMR recommendation is 25 g per day for first 6 months and 18 g per day from 6–12 months. The higher recommendation is to compensate for the lower NPU of 65 for the protein derived from cereal-based Indian diets compared to diets high in animal proteins.

Calcium

The additional calcium required during pregnancy is mainly that needed for the growth of the foetus. The total pregnancy requirement is about 30 g of which the term foetus accrues 27.5 g, the placenta 1 g and the maternal fluids and tissues about 1 g. Since most of the foetal growth occurs in the 3rd trimester, it is proposed that 0.5–0.6 g of calcium be added to the daily requirement of 0.4 g for the non-pregnant state and a total of 1.0–1.2 g of calcium be given in the 2nd half of pregnancy.

Calcium content of breast milk averages 300 mg per litre in established lactation. To meet this need, a total allowance of 1200 mg daily is recommended for the lactating women. Such an intake should prevent maternal de-mineralisation which accompanies lactation.

Iron

Additional iron requirement during pregnancy is computed from iron needs for foetal growth, (250 mg) expansion of maternal tissue including the red cell mass during pregnancy (400 mg), the iron content of placenta and the blood loss during parturition (250 mg). There is, however, saving (150 mg) due to cessation of menstruation amenorrhoea. Based on these considerations during pregnancy additional iron requirement for pregnancy is estimated to be 30 mg daily. No additional requirement has been suggested during lactation since the saving due to amenorrhoea is believed to take care of the amounts secreted in the milk.

Vitamin A

Vitamin A requirement for a pregnant woman is not markedly different from that of a non-pregnant woman (600 µg/day). The additional demand for foetal liver storage of about 25 µg/day may be ignored. During lactation, additional allowance has been suggested to be about 350 ug of vitamin A or 1400 µg of β-Carotene.

Vitamin C (Ascorbic Acid)

The recommended intake of ascorbic acid for an adult is 40 mg. There are no data to indicate additional vitamin C required during pregnancy. However, during lactation the requirement of Vitamin C is doubled to compensate for the amounts secreted in milk.

B-Complex Vitamins

Thiamin, riboflavin, niacin, pyridoxine: Since, the requirements of B-complex vitamins like thiamin, riboflavin and niacin are related to calories, the additional amounts recommended during pregnancy and lactation are based on the additional calories. Thus the additional amounts (mg) recommended during pregnancy are 0.2 thiamin, 0.2 riboflavin and 2 niacin equivalents. The corresponding values during first six months of lactation are 0.3, 0.3 and 4 mg respectively and during 6–12 months of lactation 0.2, 0.2 and 3 mg respectively. The additional amounts of pyridoxine recommended are 0.5 mg during pregnancy as well as lactation.

Folate: During pregnancy there is considerable increase in the demand for folates which are required for DNA synthesis in the rapidly growing tissues. Actually there is an increased absorption of folate during pregnancy due to depleted maternal stores. Though vegetables are rich sources of folic acid, the dietary intake of folate among women of the lower socio-economic classes in India has been found to be only 50–70 µg per day. The recommended daily intake for adults is 100 µg and for pregnant women 400 µg. To reach this level, the consumption of green vegetables should be encouraged and additional folate supplements given specially in the last 12–16 weeks of pregnancy.

During lactation the strain on maternal folate reserves is around 20 µg/day, varying with the folic acid content and volume of milk. The RDA for folacin during lactation has been suggested as 500 µg by National Research Council, U.S.A. Folic acid content of breast milk of Indian women is 16 ng/ml, a figure much lower than 30 ng/ml reported from the west. At higher level of milk secretion the amount of folate lost by the mother would be 25 µg/day. Additional allowance of 50 µg/day has been provided for lactation

by the Indian Council of Medical Research (ICMR). Thus the RDA of folic acid during lactation would be 150 µg.

Vitamin B_{12}: The recommended intake of vitamin B_{12} for adults is 2 µg per day. In pregnancy, additional amounts are required for haemopoiesis and liver storage for subsequent secretion in milk. During the latter half of pregnancy, the requirements of vitamin B_{12} increase to 3.0 micrograms per day to provide for foetal storage of 50–100 µg.

Breast milk of normal women contains 300 pg/ml of Vitamin B_{12} Based on 850 ml milk output, the amount of vitamin B_{12} secreted is between 0.25–0.3 µg. In undernourished women vitamin B-12 content of breast milk is lower. It was also observed that the infants entirely breast fed for long duration developed megaloblastic anaemia. Supplementation of the mother with 50 µg of vitamin B_{12} as a single dose reversed the megaloblastosis. ICMR (1989) recommended additional intake of 0.5 µg/day of vitamin B_{12} to cover the needs during both pregnancy and lactation.

From the above discussion it is obvious that in a balanced diet about 10% of calories should be derived from protein with the remaining calories derived from fats and carbohydrates according to cultural preferences. Mixtures of cereals and pulses with some quantity of foods from animal origin can provide all the essential aminoacids required. Liberal amounts of fresh vegetables and fruits are recommended. It is usual to prescribe 30–60 mg of additional elemental iron, and 0.5 mg of folic acid to all women in the 2nd half of pregnancy.

WEIGHT GAIN DURING PREGNANCY

A healthy woman gains on an average about 11–12 kg during pregnancy. The usual pattern of weight gain consists of a minimal gain of 1–2 kg during the first trimester and a more or less, linear rate of 0.4 kg/week in the second and third trimester.

The components of the weight gain (g) computed for different periods of gestation are given in Table 1.

Table 1: Components of Weight Gain during Pregnancy

Weights of gestation	12	13–27	28–40
Foetus	5	1500	3000
Placenta and amniotic fluid	50	1000	1500
Maternal tissues and blood	600	6000	7000
Total weight gain	655	8500	11,500

Source: Hytten, F. and Leitch, I. Physiology of Human Pregnancy, Blackwell Scientific Publishers, Oxford London & Edinburgh, 1971.

Maternal weight gain should follow this normal pattern. Women with poor general nutrition prior to pregnancy and the pregnant teenagers should increase their calorie and protein intakes so as to attain their ideal weights and achieve a normal total weight gain

of 10–12 kg during pregnancy over their ideal non-pregnant weights. The over-weight women (20% or more above the ideal weight for height and age) entering pregnancy have increased risk of complications like hypertension, diabetes etc. Even in this group, it is not advisable to restrict weight gain by limiting calories. Increased catabolism of body fat in the absence of adequate dietary carbohydrates results in ketonaemia which affects the neurological development of the foetus. Hence these women should receive at least 30 kcal/kg body weight and advised to lose weight by exercise rather than diet restriction.

While low weight gain in pregnancy is associated with a higher incidence of prematurity and low-birth weight, excess weight gain is associated with complications like pregnancy-induced hypertension — termed as toxaemia or preeclampsia, leading to perinatal deaths due to prematurity. It would appear that best reproductive performance is associated with a weight gain of about 9 kg in the second half of pregnancy. However, women of poor socio-economic class on an average gain only 6–7 kgs during entire pregnancy. Some of these women actually lose weight after 28 weeks of gestation. It is not certain whether body fat loss in these women is due to undernutrition or the fat is utilised for the synthesis of lean body tissues.

EFFECTS OF UNDERNUTRITION ON THE MOTHER

Maternal Body Size

Chronic deprivation of food particularly during the period of growth and development, results in short stature. In addition to this, early marriage traditional in many poor societies and pregnancy during adolescence, before the genetic potential of growth is achieved, imposes additional burden. This results in the poor growth of the foetus and birth of growth-retarded child. About 50% of girls in rural and urban poor societies in India are married before the age of 16 and 40% of adolescent pregnant girls are below the age of 16.

Due to the immaturity of the pelvic bones there is a possibility of having contracted pelvis and consequently surgical intervention. A recent study by the authors in the adolescent pregnant girls has shown that the surgical intervention due to cephalopelvic disproportion was of much higher order in the adolescent girls than in the adults.

Micronutrient Deficiencies

Besides the small body sizes impoverished women subsisting on poor diets have a high incidence of micronutrient deficiency. These are markedly aggravated during pregnancy. Thus, the incidence of anaemia can be as high as 60–70% and the signs and symptoms of B-complex vitamins deficiency, such as angular stomatitis, glossitis, tingling and numbness, burning feet—25–30% in pregnant women from the low socio-economic group, particularly in higher parity women. The serum levels of most of the important nutrients such as serum iron, folic acid, vitamin B_{12}, riboflavin and vitamin A are significantly lower in women from low-income group as compared to the well-to-do women. Bone density of the mothers from low-socioeconomic group is also considerably lower than the upper-income group women.

Maternal Mortality

Maternal mortality rate is high in developing countries like India (350–400 per 100,000

births). Anaemia and toxaemia seem to contribute to nearly 30–40% of maternal deaths in these populations, indicating that maternal malnutrition is a major determinant of high maternal mortality.

Placental Function

In recent years, evidence has accumulated to demonstrate an impairment in placental function in maternal malnutrition. Earlier opinion that placenta could function normally at the expense of maternal resources is now questioned.

Foetal Wastage

Severe degrees of protein deprivation and vitamin deficiencies in animals lead to foetal and placental resorption. However, the extension of this knowledge to human situation should be viewed with caution, since the extent of deficiency created in animal experiements is not seen in human beings. Besides, the effects of single deficiency can be studied, in animals, whereas in humans the deficiencies are always multiple. A survey carried out in Hyderabad, India indicates that 20% of the pregnancies in women belonging to low socioeconomic group terminated in abortions and/or still births. However, this incidence may actually be an underestimate of the real situation as many abortions would be occurring within few days of implantation and therefore missed as delayed periods. Taking this fact into account, the incidence of pregnancy wastage could be almost 30%.

Complications of Pregnancy

Hyperemesis gravidarum: Many women suffering from hyperemesis gravidarum respond to high doses of pyridoxine. Tryptophan metabolism is markedly impaired in hyperemesis indicating pyridoxine deficiency.

Pregnancy-induced hypertension: In developed and developing countries a consistently high incidence of severe pre-eclampsia and eclampsia are seen in poor-income groups of population. Poor antenatal care due to inadequate obstetric service could be a contributing factor. In recent years, role of calcium deficiency in the aetiology of pre-eclampsia is being increasingly recognised.

EFFECTS OF MATERNAL MALNUTRITION ON THE FOETUS

Congenital Malformations in the Foetus

Dietary deficiencies, single or multiple, are known to produce congenital malformations in experimental animals, main deficiencies being protein, B-complex vitamins and vitamin A. In humans, it is very difficult to establish a relationship between dietary deficiencies and congenital malformations for various reasons. Firstly, the severity with which the deficiencies are produced in animals is never encountered in human situation. Secondly, since many factors operate simultaneously in human pregnancies, it is difficult to pinpoint to any specific aetiological factor. Thirdly, unlike in animals, human pregnancy is of long duration and nature has enough time to eliminate abnormal ova incompatible with life at a very early stage of implantaion. Since foetal wastage is high in low-income population, one can assume that dietary deficiencies contribute to higher incidence of congenital malformations. However, the incidence is much higher if mothers have suffered from viral infections such as rubella, influenza etc.

In recent years, the role of folic acid deficiency on the development of neurocranial defects in infants is being increasingly recognised. Case-control studies have shown beneficial effect of folate supplements in reducing this anomaly among those who are highly susceptible as judged from previous history.

Birth Weight

Traditionally, the birth weight of an infant has been accepted as an indicator of foetal well being and growth *in utero*. Considerable data are available from different parts of the world indicating that infants born to mothers belonging to low socio-economic group of population have lower birth weight.

The birth weight of infants is influenced by many factors such as maternal age, parity, height, altitude, ethnic origin and socio-economic status. Since mothers belonging to poor-income groups are lighter and shorter, it may be argued that the low-birth weight observed in this population is an effect of maternal size rather than her poor nutritional status. However, supplementation studies carried out in different parts of the world have indicated the beneficial role of caloric supplements on the foetal outcome in terms of birth weight and subsequent growth of the infant. Low-birth weight is an important cause of high infant mortality rate in these communities.

Infant Mortality

Perinatal and infant mortality rates reflect the health of a society and its health-care services. Over the decades, there has been significant decrease in the infant mortality rate in most developing countries including India. The major components of infant mortality i.e. perinatal (28 weeks of gestation to 7 days postnatal) and early neonatal (7 days – 1 month after birth) mortality, are directly related to the health and nutritional status of the mother during pregnancy. Due to the high incidence of low birth weight and prematurity in poor communities, perinatal and neonatal death rates are also higher and contribute to almost 60% of infant deaths. A close association has been shown between the incidence of prematurity, low birth weight and perinatal mortality on one hand and severity of anaemia in the mother on the other. Besides anaemia, other conditions such as pregnancy hypertension, placenta praevia and other complications when associated with poor nutritional status, result in much higher perinatal deaths.

Nutrient Stores in Foetal Liver

Many of the nutrients are adequately stored in intrauterine life to meet the immediate postnatal needs of the infant. It was believed that foetus being a parasite, it derives and stores the nutrients at the expense of maternal reserves even in severe maternal malnutrition. However, body composition studies of the foetuses born to poor-income group mothers in India showed substantially lower values for several nutrients. Stores of iron, folic acid, vitamin B_{12} and vitamin A were 50–60% of the reported values for Western women. The implications of such poor stores are obvious particularly since the breast milk of the mothers of poor income groups is also deficient in most of these nutrients. Associated repeated infections tend to further deplete the already deficient stores of the infants thus leading to anaemia and other deficiencies during early infancy. Bone den-

sities of the neonates born to undernourished mothers are lower as compared to the infants of well-nourished mothers.

Development of Brain and Mental Function

The peak period of human brain growth is in the last few weeks of intrauterine and first six months of extra-uterine life. After this the brain growth slows down. Insults during these phases can be expected to affect brain development and lead to poor mental function. Chapter 15 discusses this subject at length.

NUTRITION AND LACTATION

Lactation is a physiological process. A variety of mechanisms determine the initiation and maintenance of Lactation.

Initiation of Lactation

During the first 2 or 3 days after birth, a small amount of colostrum is secreted. In subsequent days a rapid increase in milk secretion occurs, and in most cases lactation gets reasonably well established by the end of the first week. In primiparas however, the establishement of lactation may be delayed until the third week or even later. Generally, therefore, the first 2 or 3 weeks are a period of rapid lactation initiation. This is followed by the longer period of maintenance of lactation. These two phases are not caused by precisely the same stimuli, but the basic physiological mechanisms that are operative are similar in both cases.

Milk Volume

The uniqueness and importance of human milk as against the breast milk substitutes has now been accepted world-wide. The mere fact that the mother is breast feeding does not ensure that the lactation is satisfactory, and the amount of milk produced corresponds either to the productive capacity of the mother or the nutritional requirements of the infant. Many factors influence milk production, mother's nutritional status being one of them. Nutritional requirements during lactation mainly depend on the volume of milk produced, duration of lactation and the composition of breast milk to meet the requirement of the growing infant.

Though numerous studies have been done to measure the milk output during different periods of lactation, none of them are fully reliable because it is impossible to measure daily milk production without interfering with natural breast-feeding.

Various methods used to measure the milk output are:

1. Test feeding by weighing the infant before and after feeding under standard condition.
2. Measurement of the volume of expressed milk.
3. Oral administration of deuterium oxide (D_2O) or other stable isotopes to the mother and measuring the excretion of D_2O in the serum or saliva of the mothers and infants.

While the first two methods may be of value in countries where breast feeding is on time schedule, in countries like India where the feeding is done on demand, accurate measurement of milk output is difficult.

Despite these limitations, studies carried out in Hyderabad, Baroda and Gambia indicate that the milk output of undernourished women is quite satisfactory and adequate to meet the caloric needs of infants in the first 4–6 months. This is despite the fact that the women continue to take poor diet during pregnancy and lactation without any additional supplements. Also, lactation in these women continues for long time satisfactorily. However, recent studies show that milk output measured in terms of growth of the infant, is related to the maternal body weight. Women with weights below 40 kg and poor weight gain during pregnancy may have poorer lactation performance, as evidenced by growth faltering of infants offer 3–4 months of age. While increase in the energy and protein intake of mothers by supplementing the maternal diet improves milk output, it also results in early return of menstruation and fertility.

Composition of Milk

For a given individual the composition of milk is influenced by the amount secreted, the stage of lactation and the timing of its sampling during the day. There are considerable individual variations among the lactating mothers. Milk from mothers of premature infants has been found to contain higher nitrogen (protein) content than similar samples from mothers of term infants.

Except for vitamins and fat content, the composition of human milk appears to be largely independent of the state of nutrition of the mother (Table 2), at least until malnutrition becomes severe. Even after prolonged lactation (2 years or more), the quality of milk produced by Indian and African women appears to be relatively well maintained, although the quantity may be small. Severely undernourished women during time of famine manage to feed their babies reasonably well.

Protein Synthesis

Proteins present in normal milk are specific to mammary secretions and are not identified in any quantity elsewhere in nature. The proteins in milk are derived from two sources. Some are synthesized de novo in the mammary gland, and others are derived as such from plasma. Plasma-derived proteins are found primarily in the early secretory product colostrum. Thereafter, the three main proteins in milk (casein, lactalbumin, and beta-lactalbumin) are synthesized within the gland from amino acid precursors All the essential and some of the nonessential amino acids are taken up directly from plasma, but some of the nonessential amino acids are synthesized by the alveolar cells of the gland.

Hormonal Control of Milk Secretion

The stimulus for active milk secretion comes largely from the hormone prolactin, which acts on mammary alveolar cells and promotes continual milk production and release. Maintenance of milk secretion however, requires other galactopoietic factors. It is believed that the significant increase in the activities of the enzymes lipase and transferase during lactation is stimulated by prolactin. Hormonal control of the glycerol precursors and the enzymatic release of fatty acids (leading to the formation of

triglycerides) has been associated not only with prolactin, but also with insulin, which stimulates the uptake of glucose into the mammary cells.

Table 2 : Effects of Undernutrition on the Composition of Breast Milk

	Well-nourished mother	Breast Milk/litre Undernourished mother
Energy (kcal)	670–750	640
Protein (gm)	9–11	10.6
Fat (gm)	38–45	33–34
Lactose (gm)	68–70	72
Calcium (mg)	340	280
Phosphorus (mg)	140–150	117
Magnesium (mg)	38–41	30
Zinc (mg)	3–5	1.1–1.3
Iron (mg)	0.2–0.5	0.13
Copper (µg)	400	170–210
Iodine (µg)	30	NA
Selenium (µg)	13–50	NA
Vitamin A (IU)	1900–2500	790
Vitamin B_1 (µg)	140–160	153
Vitamin B_2 (µg)	360–370	220–230
Niacin (mg)	1.47–1.77	NA
Vitamin B6 (µg)	100–110	60–70
Folate (µg)	41–84	13
Vitamin B_{12} (µg)	2.5–3.0	NA
Vitamin C (mg)	40–52	19–30
Vitamin D (IU)	22	NA

Note: NA — Not available.

Compiled from: Belavady and Gopalan (1959); Jelliffe, B. (1979); Bamji et al (1986); Bourne, G.H. (1989)

Oestrogen, for example, affects milk secretion, probably by influencing prolactin level through the pituitary. The nature of oestrogen effect however, depends on the level of oestrogen in the blood. When the blood oestrogen level is low (as in the adolescent non-pregnant non lactating women), there is no prolactin secretion. If the blood level is normal, as occurs in parturition, the pituitary gland discharges prolactin. When the oestrogen level is raised beyond the point of adequacy, as occurs in pregnancy, the output of prolactin is again inhibited. For this reason oestrogens are used to arrest lactation after the loss of the baby-in the neonatal period or when lactation is undesirable, as in the case of severe engorgement of the breast. The inhibitory effects of oestrogens on milk production are less in the period of established lactation than in the early weeks of its initiation.

The effect of oral contraceptives containing combinations of synthetic oestrogens and progestogens on lactation has received considerable attention. Studies on the use of combined oestrogen-progestin contraceptive pills (usually containing 30–50 µg of

ethinyl oestradiol or 100 µg of mestranol) indicate that lactation is inhibited, and it may be a dose-related suppression of the quantity of milk produced. Therefore, hormonal contrceptives should not be prescribed when the mother is breast feeding.

Maintenance of Lactation

Suckling stimulation is widely accepted as the most effective means of maintaining adequate lactation. This is mediated through prolactin and is believed to be of greater significance than the milk ejection reflex itself. There is considerable evidence in human subjects that the restriction of suckling significantly inhibits lactation. Artificial suckling stimulation in the form of manual expression or a breast pump has been repeatedly recommended as a means of increasing milk yield or maintaining yield in the absence of the baby. Feeding on demand optimally stimulates the lactation process.

Although sucessful lactation can continue as long as adequate suckling stimulation is maintained, a gradual fall in the amount of milk produced generally occurs after 12 months. This drop in milk output is largely related to reduction of demand and cessation of recurrent stimulation of the nipple by the infant.

BREAST-FEEDING LACTATION AMENORRHOEA AND NUTRITION

Apart from the beneficial effects of breast-feeding on infant nutrition, it is a very important method of contraception. The hormone prolactin which is secreted by the anterior pituitary gland in response to baby's suckling has an anovulatory effect. In many societies sexual abstinance is practiced during lactation amenorrhoea. This too helps to increase the birth interval.

INTERVENTION STRATEGIES DURING PREGNANCY AND LACTATION

Maternal undernutrition is a major factor in intrauterine growth retardation (IUGR). Simplest solution of reducing the incidence of IUGR would be supplementing the mothers with extra calories to increase the birth weight and thereby reduce the incidence of low birth and its unfortunate consequences. However, supplementing all women through a special programme would be expensive. Besides, only 35% of the mothers give birth to low birth weight infants. In the other 65% some adaptation mechanism seems to be operating to overcome the effect of maternal undernutrition. Till such time that information on nutrition in pregnancy is available to every mother, alternative strategy would be to identify the mothers at risk and intervention planned for these mothers.

The risk factors such as maternal weight below 40 kg, weight gain < 6 kg during pregnancy, haemoglobin < 9 gms, maternal ages < 18 or above 35 years, and also earlier history of still births and bad obstetric history may be taken into consideration in identifying women at risk of giving birth to low birth weight infants. The screening method may help in identifying the nutritionally high-risk mothers and thus would be of practical significance.

Besides this, the correction of anaemia with proper distribution of iron/folic acid tablets (a national programme in India) would also reduce the incidence of low birth weight due to anaemia especially due to folic acid deficiency.

In all these efforts, the role of traditional health workers is very important since these people form the backbone of the rural set-up. Today, they are the most easily accessible