2nd Asian Ministerial Conference on Disaster Risk Reduction

New Delhi, 7 November 2007

Development Without Disasters : Agriculture and Food Security

M.S. Swaminathan
Member of Parliament (Rajya Sabha)

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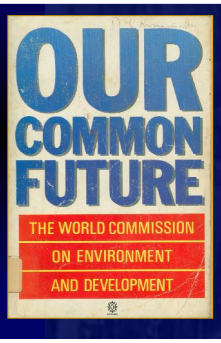
Brundtland Commission Report (1987)



"There can be no happy common future, without a better common present"

M S Swaminathan
Presidential Address at IUCN, Perth, 1990

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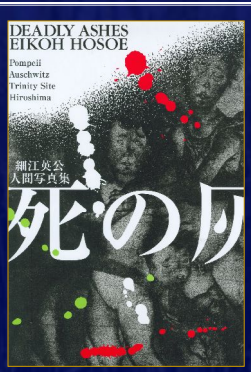
Natural and Human Tragedies



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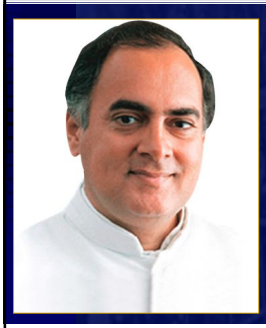
Rajiv Gandhi Plan for a Nuclear-Weapon Free World

(presented to the UN Special Session on Disarmament, 1988)



- Time bound elimination of all nuclear weapons
- No first use policy
- Voluntary Moratorium on further testing
- A comprehensive Test Ban

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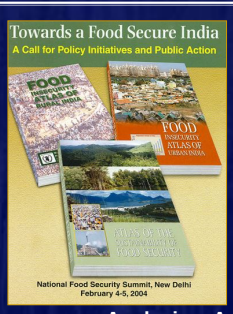
Food Insecurity : Causes and Cures

Hunger
Chronic
Hidden
Transient



Food Security
Availability
Access
Absorption

Awareness – Analysis – Action
MSSRF – WFP : Food Insecurity Atlas

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Threats to Sustainable Food Security

- Farm Ecology
- Farm Economics
- Climate Change
- Unfair Trade
- Transboundary Pests

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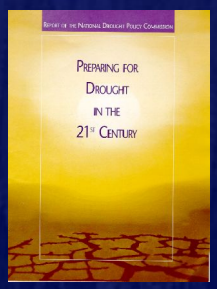
A National Drought Preparedness Act of USA



Anticipatory Action

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National Drought Preparedness Act to establish a nonfederal / federal partnership through a National Drought Council.

1. Incorporate planning, implementation of plans and proactive mitigation measures, risk management, resource stewardship, environmental considerations, and public education as the key elements of effective national drought policy.
2. Improve collaboration among scientists and managers to enhance the effectiveness of observation networks, monitoring, prediction, information delivery, and applied research and to foster public understanding of and preparedness for drought.

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Need for A Management of Climate Change Act

- Drought Code
- Flood Code
- Good Weather Code
- Coastal Zone Management
- Coping strategies for food, water, energy and livelihood security

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National Monsoon Management Strategy

Most Seriously Affected Areas (MSA)

- Food, water, fodder and work security
- **Ground Water Sanctuaries**
- Crop life saving agronomy

Most Favourable Areas (MFA)

- Compensatory production programmes
- Production of seeds, feed grains, fodder and fuel wood

Just as grain reserves are important for food security, seed reserves are important for crop security

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Economic Access to Food Biovillage

Natural Resources Conservation and Enhancement

- Land
- Water
- Biodiversity
- Common Property Resources

Sustainable Livelihoods

On-farm

- Diversification
- Value Addition

Non-farm

- Market Driven Enterprises
- Self-help Groups Supported by Micro-credit

Jobless economic growth is the enemy of food security in poor households

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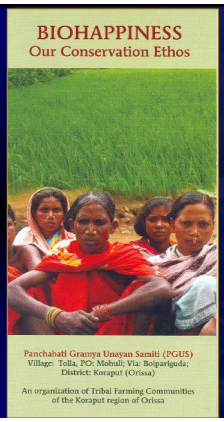

Biohappiness results from the conservation, sustainable and equitable use of bioresources

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Herbal Biovalley

Biju Patnaik Medicinal Plants Garden and Research Centre

Mahauli Watershed, Koraput Dt.

- Medicinal Plants
- Cashewnut
- Ginger-Turmeric
- Pepper
- Pulses
- Custard Apple, papaya and other fruits

Commercialisation as a trigger to conservation

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Biovalley

The goal of the Biovalley is to promote biohappiness among tribal families through integrated attention to the conservation, sustainable use and equitable sharing of the bioresources of the area leading to health, work and income security. Conservation Farming will include steps for soil health enhancement, harvesting and efficient use of rain water and saving and using plants for saving lives and strengthening livelihoods.

Linking Biodiversity, Biotechnology and Business in a mutually reinforcing manner

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Neglected Crops: Enlarging the Food Basket

- Time-Tested production and income stability under marginal and high-risk farming
- Contribution to local and regional food and income security
- Many crops are nutritionally rich to redress 'hidden hunger'
- Neglect leading to loss of genetic diversity and associated traditional knowledge
- Opportunity to enhance sustainable income, food and nutritional security

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Community Food Security System

Conservation - Cultivation – Consumption - Commerce

Gene Bank | Seed Bank | Grain Bank | Water Bank

Pathway to achieving the UN Millennium Development Goal of Eradicating hunger and poverty

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Tsunami and Mangroves

Loss of lives
5 (0.92%)
Damage to houses
136 (88.8%)

Loss of lives 0
Damage to houses 0

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Tsunami and land races of rice in Tamil Nadu

- Red color
- Salt tolerant
- 110-120 days duration
- October – January season

Kuzhivadichan

Kallurundai

Kunthali

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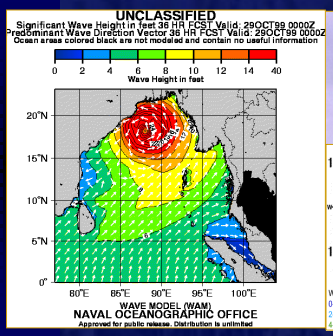
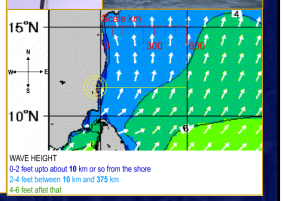
Information on Wave Heights and Fish Shoals





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Genetic Shield against Sea Level Rise

Mangrove Forests : Anticipatory Research

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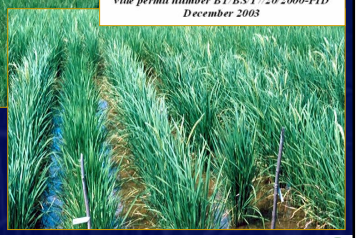
Gene Deployment for Salinity Tolerance



LIMITED FIELD TRIAL

TRANSGENIC RICE PLANTS WITH A GENE FROM MANGROVE SPECIES

With approval of the RCGM Govt. of India vide permit number BT/BS/17/20/2000-PID December 2003

IGCAR CAMPUS
KALPAKKAM

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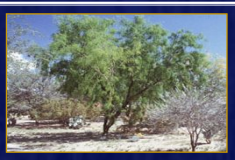
Genetic Shield against adverse changes in precipitation



Prosopis juliflora has wide adaptation to water stress and drought conditions

Used as source material for drought tolerant genes

Control | 36 days of water withdrawal

Preparing for climate change

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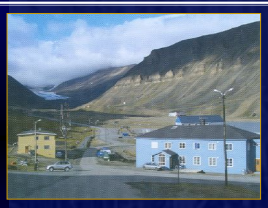
The Svalbard International Seed Vault near the North Pole



Saving Genetic Diversity for Posterity

- Established by Denmark, Finland, Iceland, Norway and Sweden with a holding capacity for three million seed samples
- Storage Temperature –3.5°C
- Inauguration in September 2007

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Transboundary Pests : Bird Flu outruns the vaccines

The H5N1 virus has evolved into a new strain, and this time nearly three times as many birds are infected in China

New Scientist, 4 November 2006

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Developing a National Biosecurity System

- Biosecurity is a strategic and integrated approach that encompasses the policy and regulatory frameworks (including instruments and activities) that analyse and manage risks in the sectors of
- Animal life and health, and plant life and
- Food safety,
- Health, including associated environmental risks
- Biosecurity covers the introduction of plant pests, animal pests and diseases, and zoonoses, the introduction and release of genetically modified organisms (GMOs) and their products, and the introduction and management of invasive alien species and genotypes.
- Biosecurity is a holistic concept of direct relevance to the sustainability of agriculture, food safety, and the protection of the environment, including biodiversity.

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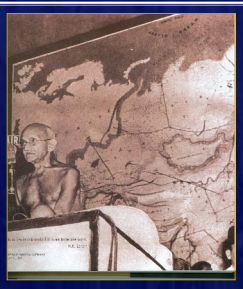
October 2 : International Day of Non-violence



Addressing the Growing Violence in the Human Heart

I would not like to live in this world if it is not to be one world

Mahatma Gandhi

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