Prelim Bits 10-02-2022 | UPSC Daily Current Affairs

Hydrogen Fuel

Ministry of Road Transport and Highways has notified in 2016 for use of Hydrogen as an automotive fuel in the country.

> The Hydrogen fuel for Internal Combustion Engine can be formed by blending 18% of Hydrogen with CNG (HCNG).

- Hydrogen is a clean zero-carbon fuel burned with oxygen that produces only water.
- Hydrogen is an energy carrier that can be used to store, move, and deliver energy produced from other sources.
- These qualities make it an attractive fuel option for transportation and electricity generation applications.
- **Sources** - Hydrogen can be produced from many domestic resources, such as natural gas, nuclear power, biomass, and renewable power like solar and wind.
- **Methods** - Hydrogen fuel can be produced through several methods.
    1. Thermal processes (Natural gas reforming, Coal gasification, Biomass gasification, and Reforming of renewable liquid fuels),
    2. Electrolytic processes (Electrolytic hydrogen production),
    3. Solar-driven processes (Photo-biological processes, solar thermo-chemical processes, and photo-electrochemical processes) and
    4. Biological processes (Microbial biomass conversion and photo-biological processes).
- The most common methods today are natural gas reforming (a thermal process), and electrolysis.
- **Uses** - Hydrogen fuel cells produce electricity by combining hydrogen and oxygen atoms.
- So, hydrogen can be used in fuel cells or internal combustion engines.
- It can be used in cars, in houses, for portable power, and in many more applications.

Reference

1. https://pib.gov.in/PressReleasePage.aspx?PRID=1796799
2. https://www.energy.gov/eere/fuelcells/hydrogen-fuel-basics
3. https://www.eia.gov/energyexplained/hydrogen/use-of-hydrogen.php

Radio Frequency Identification

Indian Army has commenced the implementation of Radio Frequency Identification (RFID) tagging of its ammunition inventory.

- Radio Frequency Identification is a wireless communication technology.
- It uses the electromagnetic or electrostatic coupling in the radio frequency portion of the electromagnetic spectrum to passively identify a tagged object.

- RFID system comprised of two components: tags and readers.
- **RFID Tags** use radio waves to communicate their identity and other information to nearby readers.
- RFID tags can store a range of information from one serial number to several pages of data. They can be passive or active.
    1. Passive tags are powered by the reader and do not have a battery.
    2. Active tags are powered by batteries.
- **Reader** is a network-connected device that has one or more antennas that emit radio waves and receive signals back from the RFID tag.
- It uses radio waves to transmit signals that activate the tag. Once activated, the tag sends a wave back to the antenna, where it is translated into data.
- Readers can be mobile so that they can be carried by hand, or they can be mounted on a post or overhead.
- **Related Links** - FASTag

Reference

1. https://pib.gov.in/PressReleasePage.aspx?PRID=1797008
2. https://www.investopedia.com/terms/r/radio-frequency-identification-rfid.asp
3. https://www.fda.gov/radiation-emitting-products/electromagnetic-compatibility-emc/radio-frequency-identification-rfid#:~:text=Radio%20Frequency%20Identification%20(RFID)%20refers,back%20from%20the%20RFID%20tag.&text=Reader%20systems%20can%20also%20be,cabinet%2C%20room%2C%20or%20building.
4. https://internetofthingsagenda.techtarget.com/definition/RFID-radio-frequency-identification

KIRAN Scheme

Around 110 women scientists in 'Women Scientist Scheme' received financial assistance under Knowledge Involvement in Research Advancement for Nurturing (KIRAN) Scheme during 2020-21.

- In 2014, Department of Science and Technology has restructured all the women specific programmes under one umbrella scheme 'KIRAN'.
- KIRAN is addressing various issues related with women scientists (e.g. unemployment, relocation etc.) and aimed to provide opportunities in
    1. Research (WOS-A),
    2. Technology development/demonstration (WOS-B), and
    3. Self-employment (WOS-C) etc.
- KIRAN is actively involved in taking proactive measures, under the name CURIE (Consolidation of University Research for Innovation and Excellence in Women Universities).
- Under CURIE, the state-of-the-art infrastructure will be developed in women universities in order to attract, train and retain promising girls students in S&T domain.
- **Related Links** - Vigyan Jyoti Programme

Reference

1. https://pib.gov.in/PressReleasePage.aspx?PRID=1796962
2. https://dst.gov.in/scientific-programmes/scientific-engineering-research/women-scientists-programs#:~:text=In%20the%20year%202014%2C%20Department,e.g.%20unemployment%2C%20relocation%20etc.)

National Food Security Act 2013

Free of cost distribution is done under the Atma Nirbhar Bharat Scheme to the migrants/stranded migrant persons, those neither covered under the National Food Security Act (NFSA) nor under any State PDS scheme.

- The NFSA, 2013 aims to provide for food and nutritional security in the human life cycle approach, by ensuring access to adequate quantities of quality food at affordable prices to people to live a life with dignity.
- Now, Public Distribution System (PDS) is governed by the NFSA, 2013.
- NFSA provides subsidized food grains under Targeted PDS (TPDS).
- **Eligibility**
  - Priority Households (PHH) to be covered under TPDS, according to guidelines by the State government.
  - Existing Antyodaya Anna Yojana (AAY) Households.
- Eldest woman of the beneficiary household (18 years or above) is considered as 'Head of Family' for issuing ration cards.
- **Provisions**
  a. The Act entitles 35 kg of foodgrains per AAY Household per month, whereas 5 Kg of foodgrain per PHH Person per month.
  b. These 5 Kgs of food grains per person per month will be given at Rs. 3/2/1 per Kg for rice/wheat/coarse grains.
  c. Meal and maternity benefit of not less than Rs. 6,000 to pregnant women and lactating mothers during pregnancy and 6 months after the child birth.
  d. Meals for children upto 14 years of age.
  e. Food security allowance to beneficiaries in case of non-supply of entitled foodgrains or meals.
  f. Setting up of grievance redressal mechanisms at the district and state level.
- **Coverage** - NFSA provides coverage for nearly 2/3rd of the country's total population, basis Census 2011 population estimates.

  75% of Rural and 50% of Urban population is entitled to receive highly subsidised foodgrains under these two categories of beneficiaries – PHH and AAY Households.

Reference

1. https://pib.gov.in/PressReleasePage.aspx?PRID=1796905
2. https://nfsa.gov.in/portal/nfsa-act
3. https://nfsa.gov.in/portal/Salient_Features_NFSA_AA

National Policy on Disaster Management

- As mandated by the Disaster Management (DM) Act, 2005, the National Policy on Disaster Management (NPDM) had been issued.
- This Policy’s vision is to build a safe & disaster resilient India by developing a holistic, proactive, multi-disaster oriented & technology driven strategy through a culture of prevention, mitigation, preparedness and response.

Objectives of the National Policy on Disaster Management

- Promoting a culture of prevention, preparedness and resilience at all levels through **knowledge, innovation and education**.
- Encouraging mitigation measures based on technology, traditional wisdom and environmental **sustainability**.
- Establishing institutional and techno-legal frame works to create an enabling regulatory environment and a compliance regime.
- Developing forecasting and early warning systems backed by responsive and failsafe communication with information technology support.
- Promoting a productive partnership with the media to create awareness and contributing towards capacity development.
- Ensuring efficient response and relief with a caring approach towards the needs of the vulnerable sections of the society.
- Undertaking reconstruction as an opportunity to build disaster resilient structures and habitat for ensuring safer living.
- Promoting partnership with media in disaster management.

The first National Disaster Management Plan was issued by the National Disaster Management Authority (NDMA) in 2016 and it was revised in 2019.

Reference

1. https://pib.gov.in/PressReleasePage.aspx?PRID=1796818
2. https://vikaspedia.in/social-welfare/disaster-management-1/policies-and-acts

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