



Promote Open-Source Software in India's National Interest

Introduction:

- The fast spread of Free and Open-Source Software (FOSS) throughout the globe has been one of the **most inspirational technological advancements in the past 20 years.**
- Today, FOSS powers the majority of digital experiences, with FOSS powering more than 85 percent of India's Internet. FOSS is used by major organisations like as the courts, the Indian Railway Catering and Tourism Corporation, and the State Bank of India to expand operations and offer timely and effective digital services to millions of people.
- **FOSS democratises technology and allows for rapid innovation by providing organisations with access** to a worldwide pool of talent as well as the tools necessary to produce safe, dependable, and scalable software.
- **Promoting free and open-source software is in India's national interest** since it would help the country become more self-reliant in science and technology.

About FOSS (Free and Open-Source Program):

- FOSS (Free and Open-Source Program) does not imply that the software is free. **The word "free" denotes that the programme is not subject to copyright restrictions.**
- It implies that the **software's source code is available to everyone, and**

anybody may use, study, and alter it.

- It enables **other individuals to participate to the software's development** and enhancement as a community.
- **Free/Libre Open-Source Software** is another term for FOSS (FLOSS).
- **MySQL, Firefox, Linux,** and other FOSS programmes are examples.



FOSS's Importance:

- FOSS currently offers an alternate approach for developing digital technologies at a large scale.
- Unlike proprietary software, **open-source code may be edited, modified, and reused by anyone.**
- This has several advantages, including lower prices, no vendor lock-in, the **freedom to customise for local context,** and more creativity due to **increased cooperation.**
- FOSS communities may inspect open-source code for **compliance with data**

privacy rules, assist in the discovery of defects, and assure openness and responsibility.

India and FOSS:

- Governments' first initiatives to encourage open source centred on the **adoption of Linux-based operating systems and open document formats.**
- In this ecosystem, Indian developers play a significant role. **According to GitHub, India accounted for more than 7.2 million of its 73 million users in 2021**, putting it in **third place** after China (7.6 million) and the United States (13.5 million).
- However, the **Indian developer base is increasing at a quicker rate**, reaching 40% in 2020-21, compared to just 16% in China and 22% in the United States. **By 2023, GitHub expects 10 million Indian developers to be using its platform.**
- Millions of Indian coders are connected to the global open-source ecosystem, which is a positive indication and might **provide India a competitive edge in high-tech geopolitics.**

Challenge before India on FOSS:

- Despite high consumption, India falls behind the rest of the world in **developing sustainable home-grown FOSS innovations.**
- Because "free" in FOSS is interpreted as "free of charge," many people believe that FOSS-based solutions are inadequate.
- Another key **concern is that dealing with a proprietary software provider that creates customised software** and can be held responsible for any errors might seem more convenient.

- **Using open-source components might result in a significant amount of extra effort.**
- Open-source software may be licenced **under over 200 different kinds of licences.**

Way Ahead:

- The first step is to incentivize the use of FOSS in government. **The government's strategy on open-source software adoption mandates all IT vendors to submit bids that include open-source choices.**
- In the National Interests of Open-Source Technology, **India must enhance its technical independence.** Given the evolving economics and politics of the technological sphere, **open-source software is in India's national interest.**
- India must now work to **promote the open-source economy by using a variety of policy levers to encourage developers and businesses** to spend more in open-source software development.
- **Engineering institutions should encourage their students to engage in open-source projects as part of their education.** For a nation with a large IT sector, maintaining a robust open-source environment is a question of social obligation. **More developers will be lured to open-source projects if they are acknowledged as fulfilling corporate social responsibility (CSR) obligations.**
- **A trustworthy institutional anchor is required to serve as a home for FOSS-led innovation in India**, bringing together FOSS champions and communities from around the country.

Conclusion:

- India is at a crossroads in its route to increased FOSS use in government technology. **India already has the essential talent, with a workforce of more than four million IT workers** and a software sector that is the envy of the world.
- What is **needed now is a coordinated effort to realise FOSS's greatest promise: the prospect of collaborative technical creation.**

Developed Nations' Climate Fund

News Context:

- The globe is experiencing a series of **hydro-meteorological and climatological calamities**, the majority of which are being **blamed on climate change**, particularly in vulnerable nations, yet the **promised funding remain uncertain.**

Climate finance - what is it?

- Climate finance is a term that **refers to local, national, or international funding from public, private, and alternative sources that aims to assist climate change mitigation and adaptation initiatives.**
- **Increased investment in mitigation programmes results in a decrease in carbon emissions**, which benefits everyone, including the donor nation.
- Additionally, **such investments get worldwide credibility as "climate aware,"** since project effects are readily visible and quantifiable.
- At the **COP15 Summit in Copenhagen in 2009**, developed countries pledged to **pooling \$100 billion in annual climate fund to**

enable poor countries to take meaningful action.

- The **Paris Agreement reinforces industrialised nations' duties** while inviting other Parties to make voluntary contributions.
- However, developed countries are increasingly **pressuring poor countries to commit to an implausible goal of achieving net-zero carbon emissions by mid-century.**
- According to the idea of "**common but differentiated responsibility**," **wealthy nations must offer financial assistance to developing country Parties** to help them in fulfilling the UNFCCC's goals.

What funding mechanism is in place?

- The Convention created a **financial system to ease the supply of climate funding to developing nation Parties.**
- Additionally, the **finance structure facilitates the implementation of the Kyoto Protocol and the Paris Agreement.**
- Since the Convention's entrance into force in 1994, the **Global Environment Facility (GEF) has acted as the financial mechanism's operational institution.**
- **In 2010, at COP 16, Parties created the Green Climate Fund (GCF)** and subsequently designated it as the finance mechanism's operational institution.
- The GEF establishes and manages **two special funds.**
 - The **Special Fund for Climate Change (SCCF)**
 - The **Fund for Least Developed Countries (LDCF)**
- The **Adaptation Fund (AF) was formed in 2001 as part of the Kyoto Protocol.**

What is the status of monies that have been disbursed?

- **Appropriate technique is not employed to estimate** the real financing of the 100-billion-dollar commitment by rich nations.
- According to current OECD estimates, **developed countries gave and mobilised 79.6 billion dollars in climate funding in 2019**, however these figures are **challenged by the majority of recipient countries**.
- Oxfam's Climate Financing Shadow Report 2020 predicts **climate finance flows at 22.5 billion dollars in 2017-18**, which is much higher than the OECD's predictions for the same year.

Why is there disagreement in international climate financing estimates?

- **Climate financing cannot be defined as development aid given by international banks and development finance organisations for infrastructure projects.**
- **Private non-grant capital is oriented commercially** and cannot be considered international climate funding.

What are the remaining concerns?

- **According to Article 9.4 of the Paris Agreement**, scaling up financial resources should try to **strike a balance between adaptation and mitigation**.
- However, the **severe underfunding of climate adaptation** is reason for worry.
- In 2016, the United Nations Environment Programme (UNEP) **predicted annual climate adaptation costs and financial**

requirements at 140-300 billion dollars by 2030 and 280-500 billion dollars by 2050 in its Adaptation Gap Report.

- Due to **high project development costs and a lack of economic feasibility or attractive investment returns**, the adaptation industry has a tough time attracting funding, particularly private finance.
- Additionally, the **advantages are primarily restricted to the receiving nations**.

What is the developed nations' action plan?

- The developed world **must act swiftly to meet the globally agreed climate targets for 2030**.
- **Clarity and unanimity on the concept of international climate funding are required** to put an end to the debates over the categorization of "climate relevant" projects.
- This involves developing a **taxonomy that distinguishes between development and climate funding**.
- **Finance for climate adaption must be increased**.
- **Denmark has pledged to investing 60% of its climate funds towards adaptation**.
- International climate money **should be given on a need-to-know basis** to recipient nations.

Conclusion:

- Despite historically having a lower part of global greenhouse gas emissions, **climate-vulnerable countries such as Pacific Island Countries, Small Island Developing States, and Least Developed Countries are disproportionately impacted by climate change**.

- **The \$100 billion objective should be increased upward to reflect the full magnitude of financing necessary** to address current and future detrimental effects of climate change.
- After 2025, the **projection should reflect a major increase in developed nations' use of international climate funding.**

reading music, and playing a musical instrument.

Attitude

- In psychology, **attitude refers to a psychological construct, a mental and emotional entity that exists inside or defines an individual.**
- These are **intricate and gained via experiences.**
- It is an individual's predisposition mental attitude toward a value, initiated by a **responding expression toward oneself, another person, location, item, or event, which shapes the individual's cognition and conduct.**
- **An attitude may be defined as enthusiasm for a sport, dislike for a particular performer, or hopelessness about life in general.**

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Aptitude

- Aptitude is a subset of competence that **refers to the ability to do a certain kind of task at a specific level.** Aptitudes that are exceptional could be labelled "**talent.**"
- Aptitudes can be physical or cerebral. Aptitude is the inherent ability to do certain types of task, **whether developed or undeveloped.**
- Ability refers to developed knowledge, comprehension, acquired or learned abilities (skills), or attitude. **Aptitude is intrinsic, in contrast to skills and accomplishment, which refer to acquired knowledge or ability.**
- Aptitudes refer to **an individual's unique skills and abilities for learning and doing certain tasks** in a variety of different domains.
- For instance, the **capacity of a person to carry a rhythm is called an aptitude.**
- Many individuals possess a variety of related abilities, including **singing,**