



ENVIRONMENT EDUCATION AND WATER SECURITY

STANDARD TWELVE



The Coordination Committee formed by GR No. Abhyas - 2116/(Pra.Kra.43/16) SD - 4 Dated 25.04.2016 has given approval to prescribe this textbook in its meeting held on 30.01.2020 and it has been decided to implement it from academic year 2020-21.

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J6W4L8

Download DIKSHA App on your smartphone. If you scan the Q.R.Code on this page of your textbook, you will be able to access full text and the audio-visual study material relevant to each lesson provided as teaching and learning aids.



2020

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**Environment Education
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Subject Committee**

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Shri Ravikiran Jadhav, Member Secretary

Illustrations : Ms. Anagha Inamdar

Cover : Ms. Anagha Inamdar

Translation Coordination :

Shri Ravikiran Jadhav

Special Officer (Environment)

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Bureau, Pune

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Production :

Shri Sachchitanand Aphale

Chief Production Officer

Shri Liladhar Atram

Production Officer

**Environment Education
Study Group**

Mr. Shekhar Shankarrao Salunke

Shri. Pradip Dhondiram Koli

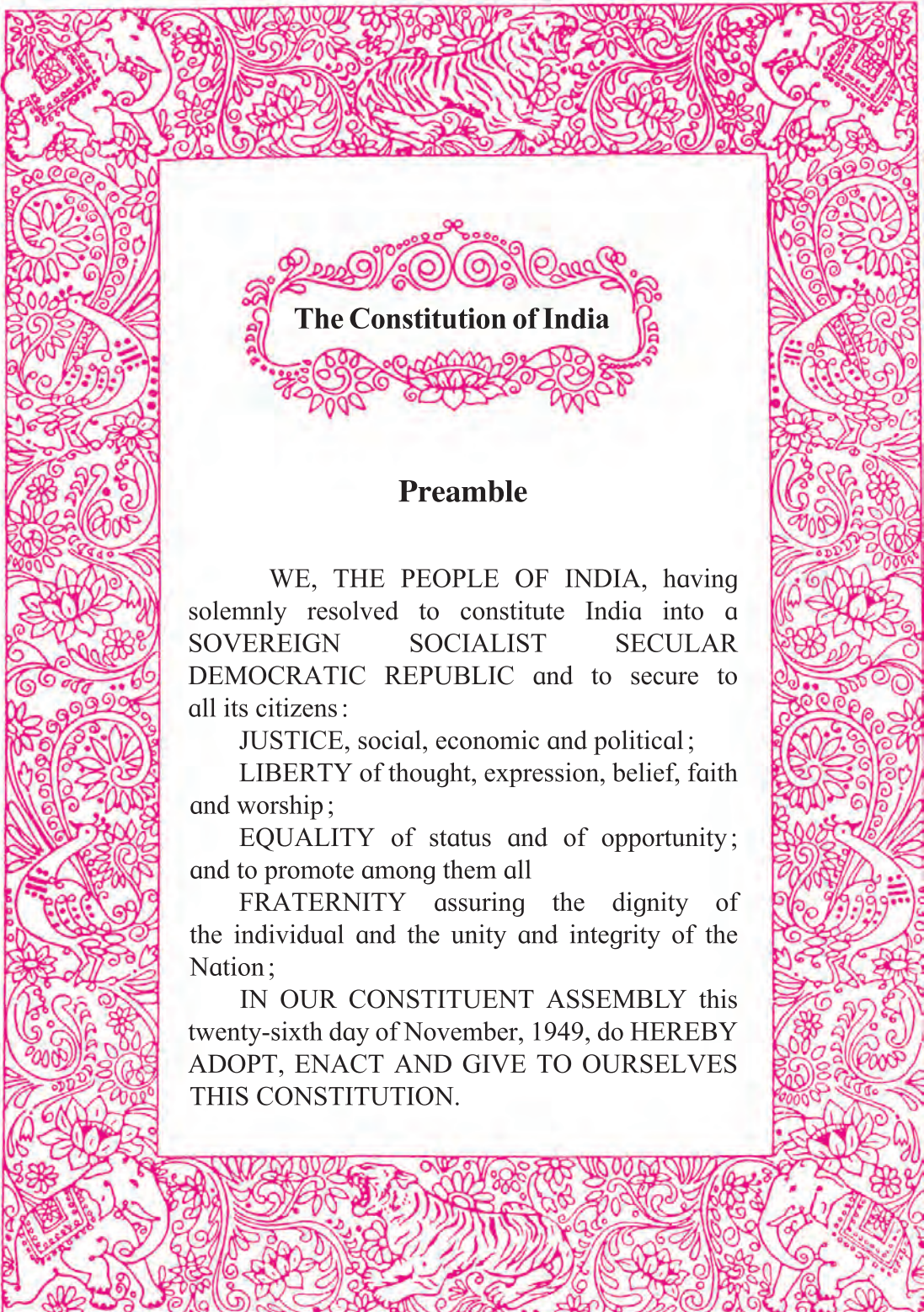
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The Constitution of India

Preamble

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC and to secure to all its citizens :

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity; and to promote among them all

FRATERNITY assuring the dignity of the individual and the unity and integrity of the Nation;

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949, do HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.

NATIONAL ANTHEM

Jana-gana-mana-adhināyaka jaya hē
Bhārata-bhāgya-vidhātā,

Panjāba-Sindhu-Gujarāta-Marāthā
Drāvida-Utkala-Banga

Vindhya-Himāchala-Yamunā-Gangā
uchchala-jaladhi-taranga

Tava subha nāmē jāgē, tava subha āsisa māgē,
gāhē tava jaya-gāthā,

Jana-gana-mangala-dāyaka jaya hē
Bhārata-bhāgya-vidhātā,

Jaya hē, Jaya hē, Jaya hē,
Jaya jaya jaya, jaya hē.

PLEDGE

India is my country. All Indians
are my brothers and sisters.

I love my country, and I am proud
of its rich and varied heritage. I shall
always strive to be worthy of it.

I shall give my parents, teachers
and all elders respect, and treat
everyone with courtesy.

To my country and my people,
I pledge my devotion. In their
well-being and prosperity alone lies
my happiness.

Preface

Dear Student/Readers,

The Maharashtra State Curriculum Framework 2010 (SCF 2010) has been prepared in accordance to the National Curriculum Framework 2005. The present book is organised according to teaching and learning approaches and materials based on SCF 2010. Hon'ble Supreme Court (SC) has directed that Environment Education (EE) be compulsory at all levels of education. Following the directions given by the SC, EE has been decided to be a separate and compulsory subject at the level of 11th and 12th standard.

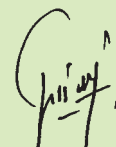
Maharashtra State has prepared the book which includes major concepts of environment which shall encourage collaborative learning and group activities to facilitate peer learning. The book has been prepared for constructivist approach and activity based teaching-learning. The content has been presented in a graded manner to facilitate knowledge building with the illustrations relevant to the content of the syllabus. The textbook highlights the measures for protection and care of the environment, prevention of pollution and conservation of energy. The topics are included to facilitate understanding of the environment in its totality. Both natural, social and economic processes and their impacts on environment are given and the ways and means to preserve the environment are discussed.

The core focus is on interconnected nature of the physical, biological, social, economic system pertinent to environmental issues. The textbook considers appropriate environmental case studies exemplifying how one may view environmental issues from a systems perspective. The teachers are encouraged to emphasise this view and try to apply it during transaction of the syllabus. The students are expected to have acquired adequate understanding of the basics of the various topics by 11th standard and through this book, the students are given a comprehensive view of the environment while dealing with the topics. The curriculum, emphasises student activities as the main vehicle of learning. At the higher secondary stage, to ensure the continuation of proactive action towards the environment, the core course, is considered compulsory qualifying course with a project and activity-based evaluation mode.

The textbook expresses concern over the prevailing drought like condition across our country and the state of Maharashtra, where we are facing acute water crisis and witness over-exploitation of groundwater. The textbook calls for immediate water conservation, rainwater harvesting, renovation of water bodies, reduce & reuse of water, watershed development, and afforestation, and drinking water sanitation through community participation at each block or city. There is a pressing immediate need to make this as a mass movement to ensure water security!

Different exemplar activities and projects are suggested (but not restricted to) in the textbooks to provide exposures to the practical environmental issues providing live contact with the world around them. The project-based learning would ensure learning in the affective domain which would bring forth good, sensitive, rational citizens. A careful planning and preparation can lead to successful implementation of this approach. Expert views and suggestions are included in this book. Use Q.R. Code given in the text book for extra information and reference. Hope that the content of this book will help students and teachers understand and act upon.

The Maharashtra State Bureau of Textbook Production and Curriculum Research, Pune, looks forward for feedback and suggestions from teachers, parents and other readers.



Vivek Gosavi
Director

Pune

Date : 21 February 2020

Bharatiya Saur : 2 Phalgun 1941

Maharashtra State Bureau of Textbook
Production and Curriculum Research, Pune

CLASS 12 : ENVIRONMENT EDUCATION AND WATER SECURITY

Learning Outcomes

Chapter	Learning process suggested; The teacher is expected to provide opportunities to students facilitating learning in groups/individually {With the help of examples, audio-visuals, images, diagrams, models, flow-charts etc.}	Learning outcomes:- The students shall be able to ;
Chapter 1 Human and environment	➤ Develop an understanding of the concepts - Population explosion, Rural and Urban settlement, Tribal communities and their traditions. ➤ To realize the environment and health issues.	➤ Explore the concepts - Population explosion, Rural and Urban settlement, Tribal communities and their traditions. To understand the correlation of the practices of people and its impact on environment. ➤ Comprehend the correlation between environment and related health issues.
Chapter 2 Environmental Pollution	➤ Understand the types of pollution as air, water, noise and solid wastes and its impacts etc. ➤ Understand the concept of events of climate change and its impact.	➤ Generate an understanding of the pollution issues of air, water, noise, and solid wastes. ➤ Understand issue of climate change and its impact.
Chapter 3 Sustainable Development	➤ Elucidate the meaning of sustainable development. ➤ Develop a realization of the need for sustainable development. ➤ Outline the goals of sustainable development. ➤ Comprehend the meaning and importance of sustainable consumption and sustainable agriculture.	➤ Expose to the concept of sustainable development and generates an understanding about the meaning and need. ➤ Understand the challenges for sustainable development. ➤ Able to grasp importance of sustainable agriculture.
Chapter 4 Practices for Environmental Protection	➤ Comprehend the meaning of 'consumer education' ➤ Acquaint with the concept of Reduce-Reuse-Recycle-Recover (4R), Environmental Impact Assessment, Environmental Audit, Energy Audit, Eco-labelling, Ecotourism and elaborate the importance. ➤ Discuss the International conventions and agreements with their role in environment protection in India.	➤ Acquaint with the meaning of the consumer education, Environmental Impact Assessment, Environmental Audit, Energy Audit, Eco-labelling, Ecotourism and understand the importance as virtuous practices for the environmental protection. ➤ Familiarize with the objectives of different world conventions, agreements and their role in adopting practices for sustainable development.
Chapter 5 Water Security	➤ Make aware of the prevailing drought like condition across our country and in the state of Maharashtra. ➤ Portray the situation of acute water crisis and witness over-exploitation of groundwater. ➤ Make aware regarding the immediate water conservation, rainwater harvesting, renovation of water bodies, reduce & reuse of water, watershed development, afforestation, drinking water and sanitation. ➤ Generate the attitude to contribute for the community programmes for water conservation. ➤ Ultimately make 'Water Security' as an immediate concern and convert this to a mass movement to ensure water security across our country, making it an added duty of citizen!	➤ The student realizes the meaning and the facts of drought conditions across our country and the State of Maharashtra ➤ Students realize water crisis situation and the meaning and impacts of overexploitation of ground water. ➤ Become conscious regarding the meaning of water conservation, rainwater harvesting, renovation of water bodies, reduce & reuse of water, watershed development, and intensive afforestation, drinking water and sanitation. ➤ Students realize the need of their role to actively participate and contribute in their area for water conservation. ➤ Students collectively sense the water security and take up their responsibility for water conservation.

- For Teachers -

To begin with, get familiar with the textbook yourself.

- ✓ Please refer to the related textbooks of earlier classes before teaching the topics of this textbook.
- ✓ Please plan carefully and independently for the activities of each chapter.
- ✓ The teaching-learning interactions, processes and participation of all students is necessary through your active guidance.
- ✓ Please use proper teaching aids in the class room for appropriate understanding of the subject such as audio-visual aids, apps etc.
- ✓ You are expected to use the given number of periods fully. Do not finish the chapter in short. This will help the students to assimilate the content without feeling the 'burden of learning'.
- ✓ Major concepts of environment have a scientific base and they also deal with social aspects. Encourage group activities, learning through each other's help etc. Facilitate peer learning as much as possible by recognizing the class structure frequently.
- ✓ Do not ask questions on statistical information. Instead, ask questions on their trends or patterns.
- ✓ The present book has been prepared for constructivist and activity-based teaching-learning.
- ✓ Follow the order of the chapters as given because the concepts have been introduced in a graded manner to facilitate knowledge building.

- ✓ Use QR code given in the textbook. Some websites have been given for reference. A list of references used is provided. You as well as the students are expected to use these references. These references will surely help you to go beyond the textbook. Please bear in mind that extra reading is always helpful for understanding any subject in depth.
- ✓ The thought-provoking, activity-oriented, journal assignment work is considered for evaluation. Some examples are given at the end of the chapters in the 'exercise'.
- ✓ The project is compulsory for each student. It should be completed according to the guidelines in "Project and journal/seminar book" provided. List of some projects is provided at the end of the book.

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Frant cover : Water security and all environment protection measures are shown.

Back cover : Sustainable agriculture, use of non-renewable energy resources, eco-friendly articles and water conservation are shown.