



GEOGRAPHY

Teachers' Guide

Grade 9

(To be implemented from 2018)

Department of Social Sciences
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Sri Lanka
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Geography
Grade 9
Teacher's Guide

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Message from the Director General

With the primary objective of realizing the National Educational Goals recommended by the National Education Commission, the then prevalent content based curriculum was modernized, and the first phase of the new competency based curriculum was introduced to the eight year curriculum cycle of the primary and secondary education in Sri Lanka in the year 2007.

The second phase of the curriculum cycle thus initiated was introduced to the education system in the year 2015 as a result of a curriculum rationalization process based on research findings and various proposals made by stake holders.

Within this rationalization process the concepts of vertical and horizontal integration have been employed in order to build up competencies of students, from foundation level to higher levels, and to avoid repetition of subject content in various subjects respectively and furthermore, to develop a curriculum that is implementable and student friendly.

The new Teachers' Guides have been introduced with the aim of providing the teachers with necessary guidance for planning lessons, engaging students effectively in the learning teaching process, and to make Teachers' Guides will help teachers to be more effective within the classroom. Further, the present Teachers' Guides have given the necessary freedom for the teachers to select quality inputs and activities in order to improve student competencies. Since the Teachers' Guides do not place greater emphasis on the subject content prescribed for the relevant grades, it is very much necessary to use these guides along with the text books compiled by the Educational Publications Department if, Guides are to be made more effective.

The primary objective of this rationalized new curriculum, the new Teachers' Guides, and the new prescribed texts is to transform the student population into a human resource replete with the skills and competencies required for the world of work, through embarking upon a pattern of education which is more student centered and activity based.

I wish to make use of this opportunity to thank and express my appreciation to the members of the Council and the Academic Affairs Board of the NIE the resource persons who contributed to the compiling of these Teachers' Guides and other parties for their dedication in this matter.

Dr. (Mrs.) Jayanthi Gunasekara
Director General
National Institute of Education
Maharagama

Message from Deputy Director General

Learning expands into a wider scope. It makes life enormous and extremely simple. The human being is naturally excellent in the skill of learning. A country when human development is considered the main focus uses learning as a tool to do away with malpractices identified with intellect and to create a better world through good practices.

It is essential to create valuable things for learning and learning methods and facilities within the adhere of education. That is how the curriculum, syllabi, teachers' guides and facilitators join the learning system.

Modern Sri Lanka has possessed a self-directed education system which is a blend of global trends as well as ancient heritage.

It is necessary to maintain the consistency of the objectives of the subject at the national level. However, facilitators are free to modify or adapt learning teaching strategies creatively to achieve the learning outcomes, competency and competency level via the subject content prescribed in the syllabus. Therefore, this Teachers' Guide has been prepared to promote the teachers' role and to support the students as well as the parents.

Furthermore, at the end of a lesson, the facilitators of the learning-teaching process along with the students should come to a verification of the achievement level on par with ones expected exam by a national level examiner, who evaluates the achievement levels of subjects expected. I sincerely wish to create such a self-progressive, motivational culture in the learning-teaching process. Blended with that verification, this Teachers' Guide would definitely be a canoe or a raft in this endeavor.

Ven. Dr. Mambulgodu Sumanarathana Thero
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Instructions for using the Teacher's Guide

In this Teachers' Guide, learning outcomes, summary of the subject content and a few teaching learning methodologies for each and every subject unit are presented. Also, a few learning outcomes related to every competency level are introduced. It is important to lay special emphasis on these learning outcomes and understand the limits of the subject area that have to be essentially imparted. The teacher should be able to motivate the students to find the required information beyond the limits of the subject area specified.

The teaching learning methodologies presented here have to be built up in a creative manner to suit the competency level mentioned, the subject content as well as to the number of students in the classroom and the time allotted. Apart from this the teacher has the full freedom to identify other appropriate teaching learning methodologies suitable for the competency levels and plan his or her work. When planning these methodologies it is more appropriate to prepare them in such a way that the students will be able to acquire pleasant and active learning experience.

Quality inputs have to be made in relation to the lesson planned by the teacher. The globe, wall maps (Sri Lanka/world), Atlases, textbooks, information leaflets could be introduced as common quality inputs which can be used in the teaching of Geography. Apart from this, you may use appropriate and specific quality inputs specially at various stages of the lesson you have planned. This will enable the students to acquire practical experiences which will pave way for students to reach the expected competency levels in learning.

Assessment and evaluation could be considered as the means of ensuring whether the students have reached the expected learning outcomes of the teaching learning process and to identify the level of competencies acquired by the students. This will enable the teacher to identify the strengths and weakness of the students as well as to avoid the problems faced by the weak students and also to improve the strengths. Accordingly, assessment and evaluation should be carried out by identifying five criteria which could be applied in the relevant teaching learning process.

The textbook relevant to the grade is only one source of information. It is important to use other sources too in the teaching learning process. By organising the teaching learning process facilitating to acquire practical experiences it will be possible for students to reach expected competency levels.

In order to transform information and subject concepts incorporated in the syllabus into successful learning experiences, the compilation of programmes which will enable active participation of even student is considered as a responsibility of the school management. A few projects related to Geography that could be carried out in schools are given below.

- **Setting up a Geographical Society**
This will give the opportunity to organize Quizzes or Do You Know contests, debates, exhibitions, educational tours, seminars of geographical importance and discussions with the participation of scholars and students and shramadana activities. It is also possible to direct students to various tasks such as the publications of wall newspapers and magazines and also in solving problems related to the subject. It will also provide the opportunity to get to know the teachers and students involved in the subject and also to identify students' abilities.
- **Setting up a Geography Room**
This will enable the development of geographical knowledge in students. Various publications, maps, learning aids relevant to the subject could be prepared and displayed. (Refer the Ministry letter ED/01/05/02/02/55AL and dated 2012.05.10)
- **Carrying out small scale Research Projects**
Motivate students to prepare and present various reports produced with the help of information derived from individuals, institutions and printed and electronic media sources.
- **Organizing programmes to develop environmental sensitivity among students**
- **Encourage students to work together with the environmental organizations prevalent in the region.**
- **Agro forestry projects**
- **School green belt and medicinal and herbal gardens**
- **Establishment of environmental brigades.**
- **Eco-sensitive school dramas promoting the use of eco-friendly products**
- **Awarding colors and prizes for student creations and field note books.**
- **Creating opportunities in making models and aids relevant to Geography.**
- **Adoption of suitable measures to improve subject knowledge using electronic media.**
 - CD/DVD
 - Computer programmes
 - TV programmes
 - The internet

Curriculum Committee

Content	Page
Message from the Director General	iii
Message from the Deputy Director General	iv
Curriculum Committee	v
Instructions for using the Teachers' Guide	vi
Syllabus	viii - xxiv
Instructions for the Learning Teaching process	01- 44
9.1 Physical and Human Landscape of the Asia Region	02 - 11
9.2 Physical and Human Landscape of Sri Lanka	12 - 23
9.3 Spatial Disparities in Development in Sri Lanka	24 - 31
9.4 Balance between the Physical and Human Environment	32 - 38
9.5 Geographical Features Depicted in 1:50,000 Topographic Maps	39 -44



Geography Syllabus



Grade 9

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Introduction

Geography is a Discipline that helps to grasp the dynamism of the bio-world. This dynamism is incorporated in the geographical landscape which is the synthesized product of the interaction between the physical and human environment in space and time. Thus Geography is a discipline concerned with the understanding of environmental and social processes and their interrelationships at local to global levels from a spatial and temporal perspectives. It is in this context that the School Geography curriculum has been developed.

In the process of developing the curriculum proposed to be implemented from 2015, the research findings on the curriculum during the past five years, classroom observations and teacher-student experiences have been taken into consideration. It is expected that the proposed curriculum will be able to provide subject knowledge and understanding, skills and attitudes and in particular, the ability to capture opportunities and assess various development alternatives. It is hoped that this curriculum will provide an insight into managing resources which promotes sustainability both in the short and long term.

Furthermore it envisages improving the ability to view the eco-societal interrelationships in the context of ecological principles.

The current syllabus has been formulated paying due consideration to the changing competency levels that varies by age and the capacity of learning of the students. In the process it is expected that the teacher should play a transforming role using interacting teaching methods to develop competencies.

This curriculum proposed to be implemented from the year 2018 is the collective effort of a group consisting of Senior University Academics, Educationists, Educators and the Geography Project Team of the NIE. The ten major competencies related to the subject of Geography incorporated in the formulation of this curriculum are mentioned below:

1. Lives with an awareness of the nature and processes of the environment in which he lives.
2. Reviews the basic concepts and methodologies that help to understand the physical and human landscape.
3. Acts with awareness of the components, characteristics and processes in the physical and human landscape
4. Acts with awareness of the manner in which the physical and human interaction impacts on the geographical environment.

5. Uses geographical techniques to collect, analyze, interpret and present data and information.
6. Applies the holistic approach in understanding, analyzing and interpreting the physical and human landscape.
7. Acts with sensitivity inculcating positive attitudes helpful in conserving and maintaining the physical and human landscape
8. Acts with an awareness of the earth and its people in order to promote a harmonious interrelationship between the environment and society.
9. Fosters special survival skills that help to overcome challenging life situations.
10. Develops skills needed for active participation in the world of work.

National Goals

- i. Nation building and the establishment of a Sri Lankan identity through the promotion of national cohesion, national integrity, national unity, harmony and peace and recognizing cultural diversity in Sri Lanka's plural society within a concept of respect for human dignity.
- ii. Recognizing and conserving the best elements of the nation's heritage while responding to the challenges of a changing world.
- iii. Creating and supporting an environment imbued with the norms of social justice and a democratic way of life that promotes respect for human rights, awareness of duties and obligations and a deep and abiding concern for one another.
- iv. Promoting the mental and physical well-being of individuals and a sustainable life style based on respect for human values.
- v. Developing creativity, initiative, critical thinking, responsibility, accountability and other positive elements of a well-integrated and balanced personality.
- vi. Human resource development by educating for productive work that enhances the quality of life of the individual and the nation and contributes to the economic development of Sri Lanka.
- vii. Preparing individuals to adapt to and manage change, and to develop capacity to cope with complex and unforeseen situations in a rapidly changing world.
- viii. Fostering attitudes and skills that will contribute to securing an honorable place in the international community, based on justice, equality and mutual respect. (Adapted from National Education Commission Report -2003)

Basic Competencies

The following Basic Competencies developed through education will contribute to achieve the above National Goals.

(i) Communication Competencies

Competencies in communication are based on four subsets: Literacy, Numeracy, Graphics and IT proficiency

- Literacy : Alternative listening, clarity in speech, reading to understand, accurate and lucid writing and effective communication of ideas.
- Numeracy : Use numbers to denote things, space and time, count, calculate and measure systematically.
- Graphics : Representation of ideas with lines and models, expression and reporting of descriptions, instructions and matching lines models and colours.
- IT proficiency : Computer literacy and the use of information and communication technologies (ICT) in learning, in the work environment and in personal life.

(ii) Competencies relating to personality Development

- Generic skills such as creativity, divergent thinking, initiation, decision making, problem solving, critical and analytical thinking, team work, inter - personal relations, discovery and exploration;
- Values such as integrity, tolerance and respect for human dignity;
- Emotional intelligence.

(iii) Competencies relating to the Environment

These competencies relate to the social, biological and physical environment.

- Social Environment - Awareness of the national heritage, sensitivity and skills associated with members of a plural society, concern for distributive justice, social relationships, personal conduct, general and legal conventions, rights, responsibilities, duties and obligations.
- Biological Environment - Awareness, sensitivity and skills linked to the living world, people and the eco system, the trees, forests, seas, water, air and life - plant, animal and human life.
- Physical Environment - Awareness, sensitivity and skills linked to space, energy, fuels, matter, materials and their links with human living, food, clothing, shelter, health, comfort, respiration, sleep, relaxation, rest, wastes and excretion.

Included here are skills in using tools and technologies for learning, working and living.

(iv) Competencies relating to preparation for the World of Work

Employment related skills to maximize the potential and to enhance capacity. -

To contribute to economic development. -

To discover one's vocational interests and aptitudes, -

To choose a job that suits to their abilities, and -

To engage in a rewarding and sustainable livelihood.

(v) Competencies relating to Religion and Ethics

Absorption and assimilation value that leads individuals to function in a manner consistent with the ethical, moral and religious modes of conduct in everyday living, selecting the most appropriate.

(vi) Competencies in Play and the Use of Leisure

Pleasure, joy, emotions and such human experiences as expressed through aesthetics, literature, play, sports and athletics, leisure pursuits and other creative modes of living.

(vii) Competencies relating to ‘ learning to learn’

Empowering individuals to learn independently and to be sensitive and successful in responding to and managing change through a transformative process, in a rapidly changing, complex and interdependent world.

(Adopted from National Education Commission Report -2003)

Aims of teaching Geography is to:

1. Act with an awareness of the concepts, characteristics and processes of the physical and human landscape.
2. Study the interrelationships, their patterns and processes in nature and society from a spatial and temporal perspective.
3. Adapt oneself to use geographical techniques to collect, analyze, interpret and present data and information.
4. Comprehend the diversity of the world; adapt oneself to live harmoniously with the environment as well as with one another.
5. Inculcate positive attitudes supportive of conserving and sustaining the physical and human landscape.
6. Foster special survival skills that help to overcome challenging life situations.
7. Develop skills needed for active participation in the world of work.

Matching Subject Objectives and National Goals of Education

Aims of Geography	National Goals							
	i	ii	iii	iv	v	vi	vii	viii
1. Act with an awareness of the concepts, characteristics and processes of the physical and human landscape.		√						
2. Study the interrelationships, their patterns and processes in nature and society from a spatial and temporal perspective.	√			√				
3. Adapt oneself to use geographical techniques to collect, analyze, interpret and present data and information.					√	√	√	
4. Comprehend the diversity of the world; adapt oneself to live harmoniously with the environment as well as with one another.	√		√	√			√	√
5. Inculcate positive attitudes supportive of conserving and sustaining the physical and human landscape.		√	√		√			√
6. Foster special survival skills that help to overcome challenging life situations.		√		√	√		√	√
7. Develop skills needed for active participation in the world of work.			√		√	√	√	√

Competency	Competency Level	Content	Learning Outcomes	Periods
Examines the components, characteristics and processes of the physical and human landscape	9.1 Reviews the nature of the physical and human landscape of the Asian region	9.1.1 The Asian Region Geographical location Asia as a specific region of the world	<ul style="list-style-type: none"> - Explains the uniqueness of the Asian region - Describes the relief of the Asian region with the aid of maps . 	18 (02)
		9.1.2 Physical landscape of the Asian region Relief drainage Climate Flora and Fauna	<ul style="list-style-type: none"> - Describes the drainage of the Asian region with the aid of maps - Describes the climate, flora and fauna of the Asian region with the aid of maps - Explains by comparing maps the interrelationship between climate and vegetation in the Asian region 	
		9.1.3 Human landscape of the Asian region <ul style="list-style-type: none"> - introduction - human civilizations and - geographical relationships various human landscapes - population distribution • dense and sparse populations 	<ul style="list-style-type: none"> - Explains with examples that Asia is the home to several human civilizations - Describes the factors that underline Asia’s human mosaic 	(08)

Competency	Competency Level	Content	Learning Outcomes	Periods
		9.2.2 Human landscape of Sri Lanka - Basic components of human landscape in Sri Lanka - Population (size, distribution, composition, growth), - Settlements - Economic activities (Agricultural, Industrial, Services) - Infrastructure (Road Electricity, Water)	- Describes the nature of human landscape of Sri Lanka	(02)
		9.2.3 Influence of physical landscape on human activities in Sri Lanka	- Describes the interaction between the physical landscape and human activities	(02)
		9.2.4 Influence of human activities on the physical landscape of Sri Lanka	- Describes how human activities impacts on physical landscape	(02)

Competency	Competency Level	Content	Learning Outcomes	Periods
Uses geographical techniques to analyze, interpret and present data and information	9.5 Describes the geographical features depicted in a map	<ul style="list-style-type: none"> - negative outcomes of environmental imbalance - recognition of the need for environmental ethics - planning development with a concern for sustainable development <p>9.5.1 Reading of 1:50,000 topographic maps of Sri Lanka</p> <ul style="list-style-type: none"> - Physical features - Cultural features 	<ul style="list-style-type: none"> - Reviews adverse impacts of environmental imbalance - Describes the reasons that disrupt environmental balance - Emphasizes that adherence to environmental ethics paves the way to sustainable development - With reference to a section of 1:50,000 topographic map provided names the physical and cultural features - Draw the physical and human features with reference 1:50,000 topographic map - Describe briefly the inter-relationship between the physical and human landscape shown in section of the topographic map provided 	8

School Policies and Programmes

It is considered a responsibility of the school teachers and the management to formulate programmes and projects accessible to each and every student in order to make the contents and concepts of the syllabus to be a more successful learning experience. A few programmes and projects in relation to the subject of geography that could be implemented within the school are given below.

- **Setting up of a Geographical Society**

This will provide an opportunity to direct students to organize various activities such as quizzes, debates, exhibitions, field trips, seminars, discussions, *shramadana*, wall bulletins and magazines. It will also provide a forum for solving subject related problems and meeting teachers and students associated with the subject and identify students' talents.

- **Field studies**

Direct students to engage in minor field activities and conduct small-scale research projects

Motivate students to prepare and present reports based on the information gathered from minor field studies, individuals, institutions, printed and electronic media.

- **Establishment of a Geography Room**

This will provide an opportunity for students to enhance the subject knowledge as well as to inculcate a proud feeling about the subject. It would be a space for location and subsequent reference of subject related publications, wall maps and 1:50,000 topographic maps of Sri Lanka, Atlases including Sri Lanka National Atlas and other teaching/learning material (please refer Education Ministry letter ED/01/05/02/02/55AL dated 10/05/2012).

- Provision of modern technological equipment to schools
 - Adoption of measures to improve subject knowledge through the use of CD/DVD etc.
 - Provision of opportunities to students to acquaint themselves of tools such as GPS and Geographical Information Systems at least at Zonal Level (Resource Centres)

- Organize programmes that enhance the environmental sensitivity within students
 - Encourage students to work with environmental organizations in the area
 - Agro-forestry projects
 - Construction of school green-belts and establish medicinal herbariums
 - School drama based on environmentally sensitive issues
 - Student environmental brigades
 - Promote use of environment-friendly products
 - Awarding of colours, plaques and trophies for student creations and field books
 - Facilitate construction of geographical models and equipment

Assessment

There are variations in the level of performance exhibited by students. It is essential, therefore, to identify these variations and practice continued assessment within the teaching learning process with a view to raising the level of performance. If the assessment is conducted at the time of teaching the lesson itself, it is possible for the teacher to identify and understand the strengths and weaknesses shown by the students.

The criteria and activities facilitating successful implementation of the School Based Assessment (SBA) are given in the Teachers' Guide.

It is necessary to implement a feedback scheme with a view to promoting students' strengths and skills identified during the teaching learning process. It is also essential that teachers should plan and implement suitable teaching learning activities for under-performing students in order to bring them to the required level of performance.

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Instructions for Teaching-Learning Process

9.1 Physical and Human Landscape of the Asian Region

Competency : Examines the components, characteristics and processes of the physical and human landscape.

Competency Level : 9.1 Reviews the nature of the physical and human landscape of the Asian region.

Learning Outcomes :

- Explains the uniqueness of the Asian Region.
- Describes the relief of the Asian region with the aid of maps.
- Describes the drainage of the Asian region with the aid of maps.
- Explains the climate, flora and fauna of the Asian region with the aid of maps.
- Explains by comparing maps the interrelationship between climate and vegetation in the Asian Region.
- Explains with example that Asia is the home to several human civilizations.
- Describes the factors that underline Asia's human mosaic.
- Describes with examples the unequal distribution of Asia's population
- Reviews Asia's economic activities citing examples.

Instructions for Planning the Lesson:

Sri Lanka belongs to the continent of Asia. Countries of great extent as well as a numerous small countries are located in Asia. Similarly diverse physical features too can be seen. Physical landscape consists of the physical features that have been created naturally on the surface of the earth. Relief, drainage, climate, natural vegetation and wild life are the components of the physical landscape.

Since Asia is the largest continent in the world it has a diversity of physical landscapes. Mountains, plateaus, plains, rivers, lakes as well as drainage, climate, natural vegetation and wild life in Asia are diverse. The physical landscape exerts diverse influences on human activities. This is unique to the Asian region. Human landscapes have lead to diverse relief features.

It is expected to study the physical and human landscapes of the Asian region from this Unit.

Periods : 18

9.1.1 The geographical location of the Asian Region

- Absolute location
 - Extends from 10° south latitude to about 80° north latitude and from 25° east longitude to about 180° east longitude.
- Relative location
 - The Asian Continent is bounded by the Arctic Ocean on the north, the Pacific Ocean on the east, the Indian Ocean on the south and the Urals mountain range on the west. A number of islands lying closer to the continent also belong to the Asian continent.
- Reasons for considering the Asian continent as a unique region in the world.
 - It is the largest Continent of the world.
 - The land area of 44 million square kilometers belonging to the Asian Continent comprised 29.5% of the total land area of the earth.
 - The Everest mountain peak which is the highest peak in the world and the Dead Sea as the lowest position on the earth are located in the Asian Continent. (Please refer page 4 to see the cross section of Asia's physical landscape)
 - The Cherapungi Region which receives the highest rainfall in the world as well as the Gobi Desert which is considered as the region of lowest rainfall are also situated in the Asian Continent.
 - Every climatic type seen in the world prevails here (Cold, Temperate, Tropical, Desert Climates)
 - All the forest types found in the world are seen here (Coniferous, Tropical Rain forest, Temperate Rain forests, Grasslands, Thorn and Scrubland and Desert vegetation)
 - A high diversity of flora and fauna, is found.
 - The two main types of human race Mongoloids and Caucasoids are in Asia.
 - Asia is the most densely populated continent of the world .
 - China and India, the most densely populated countries in the world, are situated in Asia.
 - People who believe in diverse religions such as Buddhism, Catholicism, Islam, and Hinduism live, in Asia.
 - A diversity of languages prevails.
 - A colourful mosaic of cultures is seen within the diversity of communities.

Cross section of Asia landscape



9.1.2 The Physical Landscape of the Asian Region

• Relief

- Mountains – A few main mountain ranges (systems) of the world are located within the Asian Continent. The Everest Peak of 8848m in height which is the highest mountain peak in the world is located in the Himalayan Mountain Ranges.
- Plateaus – A few main plateaus in the world are seen in Asia. Pamir, Tibet and Deccan are few examples.
- Plains – Extensive plains such as Sindhu, Ganges and Hwang Ho are located in the Asian Region.

• Drainage

- The relief of the Asian landscape has resulted in diverse drainage features.
- Largest rivers of the world as well as the smallest rivers are seen in Asia.
- Some rivers originate from mountainous areas while some others have their origin in lakes.
- These rivers flow into various oceans and seas in the world.
 - Rivers – The main river systems seen in the Region are the rivers Ob, Yenesei and Lena flowing northwards, Hwang Ho, Yangtse Kiang and Sikiang flowing towards the east and the Indus, Ganges Mekong and Irrawaddy rivers flowing to the south.
 - Lakes – Lakes Aral and Baikal are the main lakes in Asia.
- A number of ancient civilizations of the world were found along the River Valleys of Asia.

• Climate

- Zones of diverse climatic features can be identified in the Asian Region. This diversity of climates is mainly the result of relief features.
- The main climatic types, the prevalent here are Cold, Temperate, Tropical Hot, Warm Temperate, Hot Desert, Cold Desert climates.

The main climatic features:

- Cold climatic features are prevalent in the Northern, Central and Eastern Asian regions.
- Warm Tropical climatic features are prevalent in South and South-eastern Asia.
- Dry and arid climatic features are seen in the South-west Asian region.

- A clear cut seasonal variations in climate is seen when moving from the South Asian region upward to the North Asian regions.

- **Flora and Fauna**

- An inter-relationship between climate vegetation and wild life can be clearly identified in the Asian region.
- Natural vegetation or flora and wild life (fauna) are adapted according to each of the climatic types.
- Since the Asian region is a densely populated area forests have been destroyed on an extensive scale due to human activities and housing requirements.
- Human activities have resulted in the extinction of wild life too.

9.1.3 The Human Landscape of the Asian Region

The relationship between Human civilization in Asia and Geography:

- A number of historical and geographical factors have contributed to the human landscape of Asia.
- The earliest River Valley Civilizations originated in the fertile river valleys of Euphrates and Tigris, Indus valley and Hwang Ho valley .
- Based on the social, economic and religious background of these civilizations unique cultural landscapes have been created.
- The invasions that occurred from time to time as well as the colonization of some of these countries by European Nations has created a diversity in the human landscape of the Asian region.
- The geographical foundation of the region has been of much help in creating the Asian civilizations.
- In the birth of ancient civilizations the favourable environment that prevailed along river valleys was very conducive. (availability of water , lowlands, fertile soils and favourable climate helped to build up the agricultural foundation.)
- The geographical factors in the Asian Region have also contributed to the structural changes in the ancient civilizations (land routes, sea routes and routes through mountain gaps) .
- With the development in modern science and technology man has been fortunate in minimizing the harsh influence of the physical landscape on human activities.

• Distribution of population

- The population is unevenly distributed.
- Densely and sparsely populated areas can be identified.
- Two-thirds of the total population of Asia are distributed in China and India.
- Densely populated areas are distributed in the coastal areas and along river valleys.

For example: Decca in the Ganges valley;

Area around the coast of Tokyo in Japan

In areas such as Mongolia, Gobi desert and Thar desert which have mountain barriers and extremely cold climates , the population density is less than 5 persons per square kilometer .

- The birth of big cities in the Asian Region in recent times is a special feature.
For example: Tokyo, Jakarta, Delhi and Karachchi

- **Economic Activities**

- A diversity in economic activities can be seen in the Asian region.
- This diversity is seen in the agricultural, industrial and service sectors. A number of countries which show predominance in these sectors are found within the Asian Region. Here more attention is given to Pakistan as country with an agricultural economy, Japan as a country with a predominant industrial sector and Dubai as a country where service sector is predominant.

- **Agricultural sector**

- Pakistan is important as a country with a predominance of agricultural economic activities. Availability of cultivable land and water are the main natural resources of Pakistan.
- The agricultural industrial and service sectors contributes 25.9%, 24% and 53.3% of the Gross National Product of Pakistan respectively.
- About 43% of the labour force in Pakistan is engaged in agriculture.
- The main agricultural products are, wheat, cane sugar, cashew, chick peas, cotton, paddy, fruits, vegetables, animal products and other kinds of food.
- The Punjab State area where wheat and cashew are cultivated is the Pakistan's predominantly agricultural state.
- Areas of mango cultivation are distributed in the states of Sindh and Punjab. Pakistan is the fourth largest mango producer in the world.
- All these agricultural products aim at the local and foreign markets.

- **Industrial Sector**

- Japan is predominantly an industrial country in Asia. In Japan, the agricultural and service sectors contributed 26.2%, 3.9% and 69.8% of the Gross National Product respectively.
- The industrial sector of Japan has contributed immensely to make it a leading economic power in the world.
- Osaka, Tokyo, Nagoya, Kyoto and Northern Kyushu are important as the main industrial concentrations of Japan.
- Japan has gained the third place in the production of motor cars in the world.
- This is the result of high standards and efficiency in Japanese motor car production.
- Among the Japanese industrial products, the production of
 - o aeroplanes

- o ships
- o petro-chemicals
- o semi-conductors
- o consumer electronic goods
- o visual electronic components
- o food and bio-chemicals
- o robots

are important.

- **Service Sector**

- The Emirates of Dubai located in the Middle Eastern Region can be considered as a country having a predominantly service economy .
- Owing to its service sector Dubai has become a country with a rapidly developing economy .
- In Dubai, the service sector contributes 37.2% to the Gross National Product. About 33% of the employment are engaged in the services sector .
- The manner in which the policies and plans of the service sector has been prioritized and formulated in order to reach the development targets of the country it should be considered as a model by the other Asian countries.
- The naval services facilitate the transport of goods and services connecting the east-west trade routes due to the location of the Jebel-Ali, the largest man-made harbour in the world. Other service sectors in Dubai are ,
 - Tourist centres
 - Air transport
 - Consumer and wholesale trade.
 - Free Trade Zones.
 - Maintaining an Internet city .
 - Being a media city
 - Has become a knowledge-village
 - Has become an education and training hub
 - Thus, Dubai situated in Asia is a country developed through service industries.

Specimen Activity

Competency Level	: 9.1	Reviews the nature of the physical and human landscape of the Asian Region.
Activity	:	“Let us get to know about Asia”
Time	:	80 minutes
Quality Inputs	:	Rigifoam, coloured pieces of thread, powdered wood, outline maps of the world.

Instructions for the Activity:

- Divide the students into three groups.
 - Distribute the following activity to the groups.
- 9.1.1 To show that the Asian Continent is a unique region in the world . Direct the students to create an information leaflet which includes maps, pictures and other details.
- Paste a map of Asia on the rigifoam.
 - Direct them to mark the latitudes and longitudes on the prepared model. Use coloured pieces of thread horizontally and vertically to depict the latitudes and longitudes.
 - One colour may be used to show the equator , other latitudes may be shown by using thread of another colour . Pieces of thread of different colours may be used to show longitudes.
 - Coloured powdered wood may be used to show the oceans in order to show the relative location in the Asian Region.
 - Use another colour or any other material to depict the Ural mountain ranges.
- Explain the absolute and relative location of the Asian Region with the help of student creative work.
- 9.1.2
- Creating a model to show the physical landscape of the Asian Region.
 - Mark and name the features of physical landscape of the Asian Region in an outline maps of the world.

- 9.1.3
- In relation to a group activity, present an Information Report or a document to show how the historical and geographical factors have influenced the creation of the human landscape of the Asian Region.
 - Preparation of an assignment to show the diversity of economic activities in the Asian Region.

Criteria of Evaluation and Assessment

- Collection of materials and equipment for the activity.
- Obtaining instructions and guidance.
- Participating in the activity in a cooperative manner.
- Accuracy and total finish shown in the creative work.

9.2 Physical and Human Landscape of Sri Lanka

Competency : **Lives with an awareness of the nature and processes of one's living environment.**

Competency Level : 9.2 Reviews the nature of the physical and human landscape of Sri Lanka

Learning Outcomes :

- Explains with the help of maps and diagrams the relief of Sri Lanka.
- Explains with examples the drainage of Sri Lanka.
- Explains the characteristics of Sri Lanka's climatic zones.
- Discusses the characteristics of Sri Lanka's vegetation zones'
- Evaluates the distinctive physical diversity displayed by Sri Lanka despite being a small island.
- Describes basic characteristics of human landscape of Sri Lanka
- Describes the interaction between the physical landscape and human activities.
- Describes the interaction between the physical landscape and physical landscape.

Instructions in Planning the Lesson:

The main objective of this lesson is to build up appreciative attitudes regarding the uniqueness of the diversity in the physical and human landscape seen in Sri Lanka although it is a small island.

Relief, climate, vegetation and drainage which are the main features in the physical landscape are very important in geographical studies.

In this Grade it will be very important to do a simple review about the population of Sri Lanka and a few economic activities related to it which are the prominent components of the human landscape. How far has the physical environment helped these economic activities. Similarly it is necessary to conduct a simple discussion on the potential effects on the physical environment in developing these economic activities.

Similarly, in this Unit the basic features of the physical and human landscapes of Sri Lanka and the relationship between them will be discussed simply citing examples.

Periods : 14

9.2.1 Physical landscape of Sri Lanka

The Relief of Sri Lanka

Diverse landform features, the result of tectonic processes which occurred during a long period in the geological history could be identified in Sri Lanka. Three main relief zones have been identified based on their height or altitude.

The main relief zones

1. The Coastal Zone – from sea level up to 30 metres
 2. Interior Plain – from 30 metres up to 300 metres
 3. The Central Hill Country – highlands over 300 metres
- The prominent relief features in the Coastal Zone:
 - Lagoons – Jaffna, Puttalam, Negombo, Batticaloa, Kokilai
 - Bays – Holland, Weligama, Arugam, Fundaloose, Koddiyari
 - Headlands – Point Pedro, Kudiramalai, Dondra Head, Sangaman Kanda Point, Foul Point
 - Peninsulars – Jaffna, Kalpitiya
 - Islands – Kayts, Delft, Kacchativu, Mannar, Iranativu
 - Marshes – Muthurajawela, Dedduwa
 - Deltas – Mahaweli, Kala Oya, Mi Oya
 - Sea cliffs – Koneshwaram, Kudawella
 - Prominent relief features in the Interior Plain:
 - Undulating land – Anuradhapura, Polonnaruwa, Ampara
 - Mountain ranges – Rakwana, Bulutota
 - Monadnocks – Kataragama, Dirubalagala, Sigiriya, Ritigala, Mihintale
 - Prominent relief features in the Central Hill Country:
 - Mountain ranges –
 1. Samanala
 2. Haputale
 3. Namunukula
 4. Pidurutalagala
 5. Knuckles
 - Plateaus –
 1. Kandy plateau
 2. Hatton plateau
 3. Welimada plateau
 4. Mahawalenna – Koslanda plateau

- Water falls
- 1. Bambarakanda water fall
 - 2. Kurundu Oya water fall
 - 3. Diyaluma falls
 - 4. Kirindi ella falls
 - 5. Ramboda water fall
 - 6. Laxapana water fall
 - 7. Ratna water fall

- Gaps or passes
- 1. Galagedara gap
 - 2. Balana gap
 - 3. Ginigathhena gap
 - 4. Balakaduwa gap
 - 5. Haputale gap

The Drainage of Sri Lanka (The main River Basins)

Out of the 103 main rivers in Sri Lanka 34 rivers originate from the Hill Country. These rivers are considered as perennial rivers since they carry water throughout the year. As the other rivers have their origin in plains they are not perennial but seasonal rivers. The rivers which originate from the Central Hill country display a radial drainage pattern. In addition to this, a trellis drainage pattern can be seen in some localities.

	Main river	Length in km	Area sq. km
1	Mahaweli	335	10,327
2	Malwatu Oya	164	3,246
3	Kala Oya	148	2,772
4	Kelani	145	2,278
5	Yan Oya	142	1,520
6	Deduru Oya	142	2,616
7	Walawe	138	2,442
8	Maduru Oya	135	1,541
9	Maha Oya	129	1,510
10	Kalu ganga	129	2,688

The Climate of Sri Lanka:

The most prominent features of the climate of Sri Lanka are high temperature and rainfall distributed throughout the year. These climatic conditions are the result of its island location close to the equator.

Temperature:

Uniform temperatures prevail throughout the year. The annual temperature is about 26.7°C while the annual range is a small being about 2.8°C. There are local differences in the temperature due to altitude (height). Given below are mean temperature of a few location.

Town	Elevation from sea level in m	Mean temperature
1. Colombo	05	26.9°C
2. Kandy	447	24.4°C
3. Talawakele	1375	18.6°C
4. Nuwara Eliya	1882	15.4°C
5. Pidurutalagala	2524	11.5°C

The main sources of rainfall in Sri Lanka

1. Convictional (inter-monsoonal)
2. Monsoonal
3. Cyclonic

The rain received from these sources is distributed throughout the year as follows:

1. Convictional
 - March- April (the first inter-monsoonal rain)
 - September - October (the second inter-monsoonal rainfall period)
2. Monsoonal rain
 - May - September (south-west monsoon)
 - October - January (north-east monsoon)
3. Cyclonic rain
 - Cyclones can occur during any time of the year. They are more prevalent during November - December.

The Climatic Zones of Sri Lanka:

There are 5 climatic zones in Sri Lanka. These zones are classified based on temperature and rainfall.

1. Low country Wet zone

- 2 Low country Dry zone
- 3 Hill country Wet zones
- 4 Hill country Dry zones
- 5 Semi-arid zone

The Low Country Wet zone

- * Annual rainfall exceeds 2000 mm.
- * Average annual temperature is more than 27°C
- * Though there is no dry season the month of February shows dry conditions.
- * The south-west monsoon and the inter-monsoon rain bring heavy rainfall.

The Low Country Dry Zone

- * The annual rainfall is about 1250 - 2000mm.
- * The average annual temperature exceeds 27°C.
- * A drought season of about two months is seen during the period May to September.
- * The North-east monsoon and inter-monsoon bring rain.
- * The rainfall here is unreliable.
- * High evaporation brings about dry conditions.

The Semi-arid zone

- * The average annual rainfall is below 1250mm.
- * The average annual temperature exceeds 27°C.
- * The period of rainfall is limited to about 3-4 months.
- * The inter-monsoon brings rain.
- * Harsh arid conditions prevail due to very high evaporation.

The Hill Country Wet Zone

- * The western half of the Central Hill Country comes under this zone.
- * The annual rainfall is about 3000mm.
- * Within this zone, there are areas which receive rainfall over 5000mm annually. Examples of such areas are Maliboda, Watawala and Kenitworth (Maliboda - 5380mm.)
- * Dry winds prevail during December to February

The Hill Country Dry Zone

- * The eastern half of the Central Hill Country comes under this zone.
- * The average annual rainfall is about 1750-2000 mm.
- * Rainfall is received mostly from the north-east monsoon.
- * This area is subjected to dry winds in most parts of the year.

The Natural Vegetation of Sri Lanka:

Temperature and rainfall contribute to the growth of natural vegetation. Hence classification of vegetation is based on climatic factors. Accordingly, vegetation zones have been identified in keeping with mainly on the basis of climate.

The Vegetation Zones of Sri Lanka

1. Low Country Wet Zone Forest (Tropical Rain Forest)
2. Low Country Dry Mixed Evergreen Forest
3. Intermediate Evergreen Forest
4. Wet zone Montane Forest
5. Dry zone Montane Forest
6. Thorn and Scrubland
7. Mangrove Forest

1. Low Country Wet Zone Forest

- * Distributed in the western and south-western lowlands of Sri Lanka
- * High temperature and heavy rainfall prevails
- * Bio-diversity is very high
- * Trees grow to a height of about 50-60 metres
- * There is a dense growth of trees,
- * Undergrowth is thick. Consists of several canopies
- * The forests give a dark appearance as the peaks of trees are close together.
- * Trees such as *hora, keena, godapara, milla, midella, sandun* and *dawata* are mostly seen.
- * These low country wet zone forests are distributed in areas such as Sinharaja, Kanneliya, Dediyaigala, Nakiyadeniya

2. Low Country Dry Zone Mixed Evergreen Forest

- * Distributed in the Low Country dry zone areas
- * Hardwood trees are seen mostly.
- * These trees do not have a rapid growth as seen in the wet zone.
- * Trees which grow to a height of 20-25 metres are seen.
- * The trees are scattered
- * During the dry season some of these trees shed their leaves.
- * Trees such as *satin wood, teak, halmilla, ebony* and *suriyamara* are seen.

3. Intermediate Evergreen Forest

- * These forests are distributed in a transitional area between the Wet and Dry zones
- * Plant species grown in the prevalent climate are seen.
- * Trees such as *jak, bedidel, pihimbiya, mahogany* and *midella* are in plenty.

4 Wet Zone Montane Forest

- * Distributed in the western slopes of 900–1500 metres in the Central hill country.
- * These forests have grown due to heavy rainfall and moderately cold climatic conditions.
- * Trees grow to a height of 8 – 10 metres.
- * The trunks of trees are scarred.
- * Some of the trees have colourful leaves while there are plenty of epiphytes.
- * Trees like *sapu, keena, mihiriya, dawata, mora* and *hulanhik* are mostly seen.
- * These forests are seen in hilly areas of Samanala, Pidurutalagala, Horton Plains and Knuckles.

5 Montane Dry zone Forest and Patanas

- * These forests are seen in the highland areas of 1400 metres in the Central Hill country. These forests are the result of low rainfall and moderately cold climatic conditions.
- * These forests receive low rainfall and face dry winds. Hence there are Patanas along with these forests.
- * Plants such as *maha rathmal, aralu, bulu, nelli, domba and kahata* are seen here and there.

6 Thorn and Scrubland

- * These are distributed in the north western and south eastern strips of Sri Lanka.
- * These forests consist of plant species which can withstand a long dry season and low rainfall.
- * This area is subjected to a long drought period of about six months. Hence the plants grown here are adapted to such conditions.
- * The trunks and leaves of these plants have adapted in such a way to reduce evaporation for example the trunks of trees are fleshy with smaller leaves, hairy and thorny.
- * *Eraminiya, navahandi, palu* and *cactus* trees grow in these scrublands.

7 Mangroves

- * These are distributed along lagoons, river mouths and coastal regions.
- * Various types of trees are found.
- * The main plants are *kadol, kirala, ginpol*, and *katuikili*.
- * There are animal communities related to mangroves. Among them, are prawns, crabs, oysters, fish and birds.

Despite being a small island, the distinctive physical diversity displayed by Sri Lanka in relief, climate and vegetation is very clear. It is also remarkable that this diversity could be experienced within a short time and space.

9.2.2 The Human Landscape of Sri Lanka

- The basic components in the human landscape of Sri Lanka.
 - Population is the main factor that influences the creation of the human landscape.
 - The size, composition, density and distribution of population as well as the rate of increase impact on the diverse patterns in human landscape.
 - The population of Sri Lanka is 20.2 million (in 2012). This population is concentrated in a small land area creating a diversity in the human landscape.
 - The population of Sri Lanka displays diverse landscapes composed of various communities, religions and languages.
 - The rate of population increase also has brought about differences in the human landscape. Though the annual rate of increase in population in 2012 was 0.7%, a series of local differences are seen.
 - Differences in the human landscape could be identified relative to this rate of increase. Based on these differences various activities have emerged.

- Settlements

A settlement is not only a place of living but also a unit which includes all the economic, social and cultural activities of man.

 - It is also another component which reflects the human landscape.
 - The settlements of Sri Lanka can be classified mainly as rural, urban, semi-urban and plantations while various changes can be seen in the human landscape in these settlements. Diverse settlement types in the above classification can be seen. In each of these types, the economic activities are also different. For example, ancient villages, tank settlements, estates, fishing, ferry, port, market and planned settlements.

- Economic activities
 - The economic activities of Sri Lanka can be divided into agricultural, industrial and service sectors.
 - The agricultural activities of Sri Lanka are diverse. It has brought out various landscapes. The rural landscape of the dry zone is based on stretches of paddy fields, tanks, and irrigation.
 - A landscape based on tea plantations can be seen in the highlands. This also includes landscape based on terraced paddy cultivation, vegetable plots, roads in hilly areas, tea factories, settlements and workers houses.
 - A landscape based on coconut cultivation is also noteworthy.
 - A landscape based on the fishing industry has been created in the coastal areas.
 - Industrial activities are mostly distributed within the Western Province. In addition, Free Trade Zones, Industrial Estates, Industrial Parks, are distributed. An industrial landscape has emerged based on raw materials and minerals too.

- Traditional industries which exist from generations which require special skills are also seen in same areas. For example brass work in Pilimatalawa, mats in Durbarara, masks in Ambalangoda.
 - A diversity in the facilities of services is seen.
 - Many service facilities are seen in relation to urban areas and these facilities are limited in rural areas.
 - For example in services such as education, health, transport, Banks, insurance, market and communication.
 - The human landscape differs according to the diversity and distribution of those facilities. As an example service facilities have enabled the urbanization of Colombo City and suburbs.
- Infrastructure facilities
 - The development of facilities such as roads, electricity and water as infrastructure in improving the standard of living of the people have brought about changes in the human landscape.
 - The distribution of human activities in urban areas where such facilities are provided will increase while there will be a reduction in human activities in rural areas where facilities are less.

9.2.3 The Influence of the Physical Landscape on Human Activities in Sri Lanka.

- The physical landscape has exerted a remarkable influence on the human landscape of Sri Lanka.
- The landscape varies by various localities.
- Human activities are distributed according to the local geography.
- Settlements, cities, factories, tourism, fishing activities, trade are distributed along the coastal plains.

Wet Zone - As the physical environment is conducive to human activities, a plenty of human activities can be seen. (areas of dense population, concentration of roads)

Dry Zone - The physical environment has been favourable for human activities; Hence human landscape adapted accordingly (tanks and irrigation pattern)

- As it has a special soil zone with utilization of underground water, a distinct human landscape has emerged in Jaffna peninsula.

Central Hill Country

- An agricultural pattern, roads and settlements have emerged to suit the physical landscape.

9.2.4 The influence of human activities on the physical landscape of Sri Lanka

- Based on the diversity of environments, human activities are distributed in particular regions.
- With the growth of population and increasing human needs the physical environment has been subjected to many changes, pollution and the degeneration has set in.
 - * Clearing and destruction of forests in the Dry Zone areas for *chena* cultivation, paddy cultivation as well as for settlements and the resulting in destruction.
 - * In areas in the Central Hill country, clearing of forests for plantations and settlements has resulted in soil erosion, landslides and drying of water sources and springs.
 - * In the Wet zone since the physical environment has been utilized for the use of dense population, economic activities, industrial needs and service activities, the forests, mountain slopes, flat lands and marshy lands in the physical environment has been harmfully affected.
 - * There have been changes in the western, south western, southern and eastern coastal areas due to tourist activities and fisheries and other service activities.

For example: lagoons, mangroves, sea shore and river mouths.
 - * Acceleration of coastal erosion due to the changes inflicted on the nature of the coastal eco system. Natural coastal landscape has been changed owing to the construction of rock ridges, sea groyne and horizontal rock ridges in order to prevent and control soil erosion.
 - * Pollution of water, air and soil has increased due to the increasing distribution of industries. e.g. Kelani River Basin.

Specimen Activity

Competency Level : 9.2 **Reviews the nature of the physical and human landscape of Sri Lanka.**

Activity : “ Let’ s study the distribution of population in Sri Lanka.”

Time : 40 minutes

Quality Inputs : The National Atlas – (School edition)

Instructions for the Activity:

- Step 1 - Show the Sri Lanka Satellite Picture Map in the National Atlas in the class. Conduct a short discussion on the nature of land utilization according to the diverse patterns displayed through the different colours in the map
(5 minutes)
- Step 2 - Divide the students into three groups.
- Distribute the 3 annexes to the groups.
- Identify the diverse patterns seen in the human landscape in relation to the annex.
- Explain the nature and differences seen in the human landscape shown by those patterns.
- Step 3 - Once the students have put forward their findings, confirm their knowledge through the map explaining how these diverse patterns have been created in the human landscape by the influence of factors such as the size of the population, composition, density and distribution and rate of growth of the population.

Criteria of Evaluation and Assessment:

- Describes the patterns seen in the human landscape of Sri Lanka with the aid of satellite pictures.
- Gives examples to show that there are diverse patterns in relation to various components of the population of Sri Lanka.
- Gives their opinions while accepting that the nature of the landscape influences the distribution of population.
- Actively participates in group activities.
- Makes creative contributions in group work.

9.3 Spatial Disparities in Development in Sri Lanka

Competency : **Reviews the basic concepts and methodologies which help to understand the physical and human landscape.**

Competency Level : 9.3 Reviews the spatial disparities in development in Sri Lanka.

Learning Outcomes :

- Explains what is meant by spatial disparities in development
- Introduce development
- Describes the indices used to measure development
- Explains with the help of maps the information revealed by development indices on Sri Lanka.

Periods : 10

Instructions in Planning the Lesson:

Development is a process that is taking place continuously. There may be disparities in development from country to country and from region to region. There may be differences from time to time. Various factors have contributed to bring about such disparities in development. In the same way various countries make use of indices accepted internationally to measure development.

By studying this unit it is expected,

- to give a simple understanding of the concept of development and the indices used to measure development; and
- to understand the spatial disparities in development in Sri Lanka in relation to these indices.

9.3.1 Spatial Disparities in Development in Sri Lanka

Development:

- Development is a complex concept. It is not possible to give a single definition. The simple meaning of development is that it is a change that occurs for the welfare or improvement in any field.

For example - development in education, economic development, road development, development of cities, rural development, aesthetic development and spiritual development

- The common or general meaning of development is the economic and social development that takes place in the lives of people.
- The definition given in the UNESCO declaration about Development is -
“In any country economic development should take place along with social development. Social development should take place in the fields of food, nutrition, health, education, housing, social security, clothing, leisure, and human freedom.”
- UNESCO Declaration - 1978
- Hence the improvements taking place in the economic sector alone is not accepted as development. It is important that along with the improvements in the economic sector, there should be an improvement in the standard of living of the people too.
- The development that takes place in the field of education and health is mainly considered as the improvement of the standard of living of the people or quality of life.

Development Indices

- Development indices are used to identify the development level of any country. The indices based on these measurements reveal the economic development as well as the standard of living of its people in any country. These indices may be used to clarify the spatial disparities in development of any country.
- There are a number of indices. Only four indices will be taken into consideration here.

Per Capita Income

- Per capita income is defined as the average income earned per person from the national income in a given economy (country) within a specified time (an year)

$$\text{Per capita income} = \frac{\text{Total income of a country within a specific time}}{\text{Mean annual population}}$$

Infant Mortality Rate

- The number of infants who died before they reach 1 year of age is considered as I.M.R.
- Infant mortality rate is the ratio of the number of deaths in the first year of life to the number of live births occurring during the same period of time.

$$\text{Infant Mortality Rate} = \frac{\text{The number of deaths below 1 year during the same year}}{\text{The number of live births during the same year}} \times 100$$

Life Expectancy at Birth

- Generalizing the average number of years that a new born child would expect to live is life expectancy at birth.
- This value differs according to the economic and social conditions of a country as well as by gender .
- It is somewhat a complex statistical process to compute this index.

Literacy

- Literacy is the ability to read and write among persons over 15 years of age of the population of any country .
- This will be indicated as a percentage value of the total population.

$$\text{Literacy} = \frac{\text{The number of individuals above 15 years of age who can read and write}}{\text{The total population above 15 years}} \times 100$$

Spatial disparities in development

- Countries in the world are at various stages of development. Basically, these countries can be divided as Developed and Developing countries.
 - Sri Lanka belongs to the group of Developing countries.
 - Similarly, even within the country there may be disparities in development from region to region.
 - Such spatial disparities can be seen in Developing countries as well as in Developed countries.
 - In Sri Lanka too, there are spatial disparities in development.
- It is possible to identify spatial disparities in development in according to the development measures shown above.
 - Development levels could be identified by provinces or districts using development indices.
 - The spatial disparities in development can be clearly shown by maps using generated by those indices.

Per capita income of Sri Lanka by Districts, 2012-2013

District	Per capita income Rupees/ monthly	District	Per capita income Rupees/ monthly
Colombo	19,346	Mulativu	6,310
Gampaha	14,839	Kilinochchi	7,369
Kalutara	12,559	Batticaloa	6,276
Kandy	10,889	Ampara	8,041
Matale	9,392	Trincomalee	8,776
Nuwara eliya	9,074	Kurunegala	11,834
Galle	10,533	Puttlam	11,098
Matara	10,919	Anuradhapura	9,673
Hambantota	11,821	Polonnaruwa	10,307
Jaffna	8,246	Badulla	9,369
Mannar	6,727	Monaragala	9,406
Vavuniya	11,360	Ratnapura	11,338
		Kegalle	9,909

Source: Household Income and Expenditure Survey 2012/2013
Final Report, Department of Census and Statistics

- In considering the Per Capita Income by Districts, it is clear that
 - Colombo district has a monthly per capita income of approximately around Rs. 20,000 (Rs. 19,346.00)
 - There are 13 districts where the monthly per capita income is below Rs. 10,000/-.
 - Mullativu and Batticaloa districts show the lowest per capita monthly income i.e. Rs. 6,310.00 and Rs. 6,276.00.

Infant Mortality rate

Infant Mortality Rate by Districts - 2009

District	Infant mortality rate 2009, for 1000 live births	District	Infant mortality rate 2009, for 1000 live births
Colombo	15.1	Mulativu	1.5
Gampaha	4.6	Batticaloa	17.4
Kalutara	5.6	Ampara	3.1
Kandy	13.7	Trincomalee	4.5
Matale	6.5	Kurunegala	9.6
Nuwara Eliya	10.6	Puttlam	6.3
Galle	10.7	Anuradhapura	12.3
Matara	9.0	Polonnaruwa	7.8
Hambantota	5.5	Badulla	6.0
Jaffna	7.6	Monaragala	5.1
Kilinochchi	1.6	Ratnapura	6.9
Mannar	35.8	Kegalle	6.3
Vavuniya	25.1	Sri Lanka	9.7

Source:

Infant mortality rate	–	Sri Lanka	9.7
Districts with highest rates	–	Mannar	35.8
		Vavuniya	25.1
		Batticaloa	17.4
		Colombo	15.1
Lowest rates are reported by		Kilinochchi	1.6
		Mulativu	1.5

Life Expectancy at birth

According to the Department of Census and Statistics in the year 2013, the life expectancy for males was 72 years and 78.6 years for females. The average was 74.2 years. Although life expectancy at birth in Sri Lanka is at a higher level compared to other countries, there are spatial disparities by districts.

Sri Lanka Life expectancy at birth, by Districts 2013

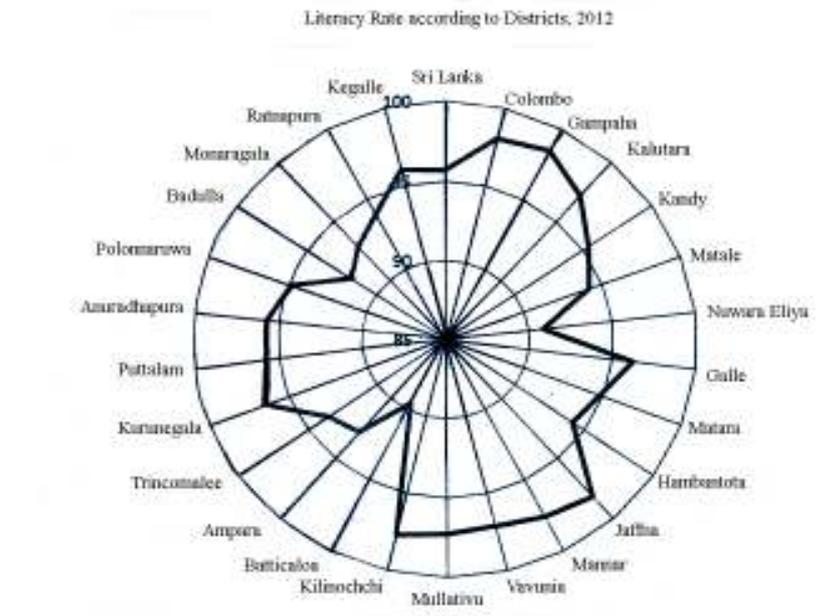
District	Male	Female	District	Male	Female
Colombo	73.0	78.5	Mulativu	64.5	74.1
Gampaha	73.2	79.9	Batticaloa	66.8	76.9
Kalutara	73.2	79.7	Ampara	71.5	81.8
Kandy	71.9	77.8	Trincomalee	72.1	78.3
Matale	71.8	78.5	Kurunegala	71.6	78.6
Nuwara Eliya	70.2	75.9	Puttlam	70.7	78.6
Galle	73.1	79.9	Anuradhapura	70.5	77.7
Matara	73.9	80.2	Polonnaruwa	70.0	77.7
Hambantota	74.2	79.8	Badulla	71.2	77.7
Jaffna	69.8	76.8	Monaragala	73.7	79.4
Kilinochchi	70.0	77.0	Ratnapura	73.7	78.7
Mannar	67.8	76.7	Kegalle	72.3	79.5
Vavuniya	60.9	72.9	Sri Lanka	72.0	78.6

Source:

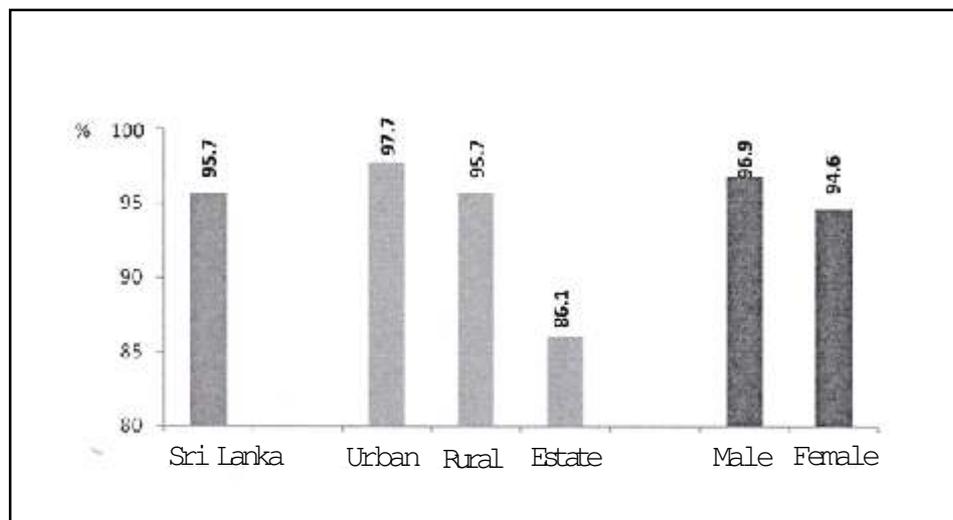
- The highest male life expectancy is recorded in Hambantota district. It is 74.2 years. Ampara district shows the highest value for female life expectancy. It is 81.8 years.
- The lowest life expectancy for both males and females is reported in the Vavuniya district.

Literacy

- According to the Census of population and housing held in 2012, literacy or the ability to read and write was 95.7%.
- In Sri Lanka the male literacy rate was 96.9% while the female rate was 94.5%.
- Sri Lanka is one of the countries in South Asia where literacy rate is high.
- When we consider literacy of Sri Lanka by districts, Gampaha district records the highest literacy while the lowest is recorded in Batticaloa district.
- Relative to the other districts, Nuwara Eliya, Hambantota, Ampara and Badulla district record a lower values in literacy level.



Literacy of people according to sex and sectors, 2012



- According to the Bar Graph given above there are disparities in literacy between the urban, rural and estate sectors in Sri Lanka.
- The literacy of the urban sector is 97.7% while the estate sector shows a value of 86.1%

Specimen Activity

Competency Level : **9.3 Reviews the spatial disparities in development in Sri Lanka**

Activity : Preparation of a wall news paper on “Spatial disparities in the development of Sri Lanka”

Time : 80 minutes

Quality Input : Bristol Board or box board, felt pens, denry paper , coloured or photo-copying paper ,Atlases, gum

- Draw the attention of the students on the points given below:
 - Introduction of the topic or the activity to the students
 - That they should present the information relevant to the activity as a wall newspaper in the class.
 - That previous preparedness is essential for this work, that the students should prepare the wall newspaper making use of the facts and information presented.
 - Organize this as a group activity
 - Relevant tasks will be assigned to each group.

Annex

Task Sheet

- Group I
- Prepare for the wall newspaper a few definitions on ‘development’ you have thought of and the officially declared definitions on development.
 - Describe separately the indices which indicate spatial disparities in development.

per capita income	infant mortality rate
life expectancy at birth	literacy

- Group II
- Preparation of Data Table in relation to the provinces or districts of Sri Lanka making use of those indices.
 - Depicting the data on an outline map of Sri Lanka prepared by the group. a suitable method may be used for this.

For example – Representing the data relevant to a province on a provincial/district map of Sri Lanka.

9.4 Balance between the Physical and Human Environment

Competency : Acts with sensitivity inculcating positive attitudes helpful in conserving and maintaining the physical and human environments.

Competency Level : 9.4 Contributes to maintain the balance between the physical and human environments.

Periods : 10

Learning Outcomes :

- Defines environmental balance.
- Explains the importance of maintaining environmental balance
- Describes the reasons for the disruption of the environmental balance.
- Reviews adverse impacts of environmental imbalance.
- Emphasizes that adherence to environmental ethics paves the way to sustainable development.

Instructions in Planning the Lesson:

In recent times special attention has been paid to the environment of the world. "Environment is the surroundings which consists of living and nonliving objects." The extent and quality of the environment may vary from one another. The entire earth may be considered as one environment. The physical and human processes taking place on the earth exert an influence on the life of man. Hence acting with an understanding about the limits set by the environment should be the responsibility and role of man. Environmental balance could be maintained by acting in this manner. It will also pave way to follow a sustainable development approach.

The harmful effect on the environment could be minimized by following a development process and the due attention to the environmental ethics. Environmental balance and the causes for the disruption of this balance as well as its adverse effects and the need for sustainable development are the issues studied in this unit.

Environmental Balance

The sustenance of the environment diversity of a biotic community in relative terms and permanently while responding to changes occurring in nature and changes made by human activities could be termed as environmental balance.

Recognition of the need for environmental balance

Man is a part of the environment. The changes taking place in the environment has an impact

on man. Human activities too have an effect on the environment. It is very essential to maintain these mutual impacts in balance for the welfare of the living.

The causes for the disruption of environmental balance

The natural environment has been formed by a multitude of inter-connected components. All of these components are essential for perpetuation of the environment. The whole environment will be disrupted by any change taking place in any component. There are a number of causes that bring about this environmental imbalance.

- over-consumption of resources
- Emission of green-house gases to the atmosphere.
- irregular development process
- use of agro-chemicals
- destruction of forests
- reclamation of land
- irregular land utilization
- Use of inappropriate technology

Adverse consequences of the disruption of environmental balance:

There are a number of adverse impacts of the disruption of environmental balance.

- global atmospheric warming
- desertification
- rise in oceanic water level
- scarcity of food and water
- occurrence of acid rain
- depletion of the ozone layer
- destruction of bio-diversity
- soil erosion and soil creep
- increasing incidence of natural hazards such as floods, bushfires, landslides

Man does not have a continuous sensitivity about the disruption of environmental balance. He becomes sensitive only when the above mentioned natural hazards and problems emerge. He draws his attention on such problems only when such a problem situation arises. Hence a decrease in such problems does not take place in the absence of continuous attention. They appear as repeated issues.

The need for the recognition of environmental ethics:

“The rules and regulations, customs and decrees and other acceptances followed and accepted by the members of any human society are considered as ethics. The meaningful good habits essential for the better management of the Lithosphere,

Hydrosphere, Atmosphere and Biosphere are considered as environmental ethics"

Even before the origin of civilization man has acted to fulfill his needs by cooperating with the environment. Accordingly, while living in the forests, he was able to fulfill his needs from the forests based on his broad knowledge of environment. During the early period man worshipped features in the environment and considered them as gods and defied them. Later, these customs and ethics were imbibed by various religions.

Environmental ethics in religion:

- "Those who plant fruit trees, flowers and make restive parks, those who put up bridges and logs across rivers, those who provide wells and ponds and those who put up shelters for others to live accrue merit every day and night while they also reach heaven."
- Lord Buddha
- "Everything found in this world belongs to god. His power extends to all living and non-living things. Hence one should take away only the portion that belongs to him. The remaining should be left to the gods." - Veda Books
- "Sowing and cutting the harvests, the cold and the warmth, winter and summer, day and night will be eternal till the earth perpetuates." - Sacred Bible
- "The world is green, beautiful. God has appointed you to protect these things. He is anxiously waiting to see how you set about it." - Abu Bucker Rally - Caliph the First.

Other environmental ethics:

- Various indigenous people in the world have given a prominent place to the environment. The Seattle, the Red Indian Chief 's statement and the other environmental friendly practices of indigenous population of several countries are very important.
- Environmental friendliness is displayed in the diverse procedures followed in the agricultural economy that prevailed in ancient Sri Lanka. For example: conservation of water, protection extended to plants and animals show the eco-friendliness.

Environmental Balance and Development Plans:

Development and environmental balance are inter-connected themes. It is clear that in the past, development has been maintained without harming the environment. Environmental balance was maintained in the traditional agricultural practices and techniques.

A few such methods are given below:

- crop rotation
- cultivation of a crop mix
- planting of *kumbuk* trees along rivers and channels.
- traditional insect control methods

- use of organic manure
- selection and cultivations of crops conforming to the environment.

Sustainable development

- In preparing development plans, the need for adopting a sustainable development approach and the recognition of following environmental ethics have become important.
- Sri Lanka is following various actions for a sustainable development approach both at the national and international levels.
- Encouraging organic cultivation locally and carrying out concepts such as green cities.
- A national conservation plan has been introduced and it draws attention to the fields given below.
 1. Planning land utilization
 2. Conservation of wildlife and forests
 3. Development of agriculture without harming forests, water and soil.
 4. Balancing population and resource ownership
 5. Coast conservation
 6. Prohibiting the utilization of land over 1,500 metres in elevation.
 7. Conducting programmes on environmental education.
 8. Assessment of environmental impact relevant to industrial development, recycling, establishment of industrial instructional services.
 9. Establishment of the Central Environmental Authority.
 10. Establishment of the Ministry of Environment.

The steps taken by Sri Lanka in protecting environmental balance:

- Two Acts approved in this regard are shown below:
 - Coast Conservation Act
 - National Heritage Forest Act
- Given below are a few Agreements to which Sri Lanka has been a signatory to maintain environmental balance at the international level.
 - The Ramsar Agreement on the Conservation of Wetlands.
 - Rio Agreement
 - Montreal Agreement

Specimen Activity

Competency Level : **9.4 Contributes to maintain the balance between the physical and human environment.**

Activity : "Let us Conserve the Environmental Balance"

Time : 80 minutes

Quality Inputs : Demy, Bristol board, photographs showing eco-systems and pictures showing the causes for their destruction and the impact or results of such destruction.

Instructions for the Activity:

Through this activity, attention is drawn on the significance of the environmental balance, the causes for its disruption as well as the harmful impacts. It can be introduced as an activity where students can actively participate as it is more useful for them. According to the necessity, this can be done as a single or a group activity while it will create pleasant learning situations. A few days before the commencement of this lesson the students should be instructed to collect pictures that depict environmental balance, the causes for the disruption and the adverse impacts.

- Step 1 – Make an approach to the activity by comparing a picture of a natural environment and a picture which shows the disruption of the environmental balance and questioning them about the contents of these pictures.
- Step 2 – Group the students and provide each of the groups the Annex and learning materials. Give a collection of pictures which are mentioned in the annex about man's intervention in the environment and the favourable and adverse impacts of such interventions (Before the lesson students should be given instructions to prepare them. Instructions necessary for the activity should be given in the first discussion)
- Step 3 – Get the students to present the picture laden files according to the picture which depicts man's intervention.
- Discuss whether the picture files and suggestions of other students matches the picture as instructed. This applies to all the groups.
- Step IV – Evaluation can be done at the end of the activity or while it is being done.

Make a summary of the lesson. Marks could be given on criteria assigned.

Feed back should be given.

Evaluation and assessment Criteria:

- Explains what is meant by environmental balance.
- Describes the causes of the disruption of the environmental balance.
- Shows the consequences of disrupting the environmental balance.
- Explains the need for maintaining the environmental balance.
- Displays the ability of pre-preparedness for work.
- Finishes work successfully within the allotted time.
- Presents activity work creatively.

Annex :

Given below is a list of the intervention by man on the environment and the impact of such interventions. Collect pictures relevant to the information on both lists to prepare picture sheets.

**Intervention by man on
the environment**

- Heavy combustion of fuel
- Setting fire to forests
- Construction of Green Cities
- Use of agro-chemicals
- Construction of planned roadways
- Reclamation of lowlands
- Irregular constructions
- Destruction of coastal systems
- Limestone mining
- Planting trees along roads
- Illicit sand mining
- Conservation of wild life
- Irregular disposal of garbage
- Conservation of river valleys
- Destruction of forests
- Use of chemical manure
- Emission of smoke from factories into the atmosphere

**The impact of such intervention on
the environment**

- Desertification
- Melting of snow
- Emergence of pleasant urban areas
- Landslides
- Occurrence of kidney ailments
- Use of oxygen tanks for breathing
- Harmful rays of the sun bring about diseases to plant and living beings
- Birth of a healthy society
- Absence of scarcity of water
- Soil conservation
- Flooding of rivers
- Loss of animal life
- Drying up of water sources
- Occurrence of drought
- Destruction of the environmental beauty
- Spread of infectious diseases
- Coastal erosion
- Increase of environmental temperature
- Water sources become impure

9.5 Geographical Features Depicted in 1:50,000 Topographic Maps

Competency : **Uses geographical techniques to analyse, interpret and present data and information.**

Competency level : 9.5 Describes the geographical features depicted on a map

Periods : 08

Learning Outcomes :

- With reference to a section of 1:50,000 topographic map provided, names the physical and cultural features.
- Draws rough diagrams depicting the physical and human features with reference to 1:50,000 topographic map.
- Describes briefly the interrelationship between the physical and human landscape shown in a section of the topographic map provided.

Instructions in Planning the Lesson :

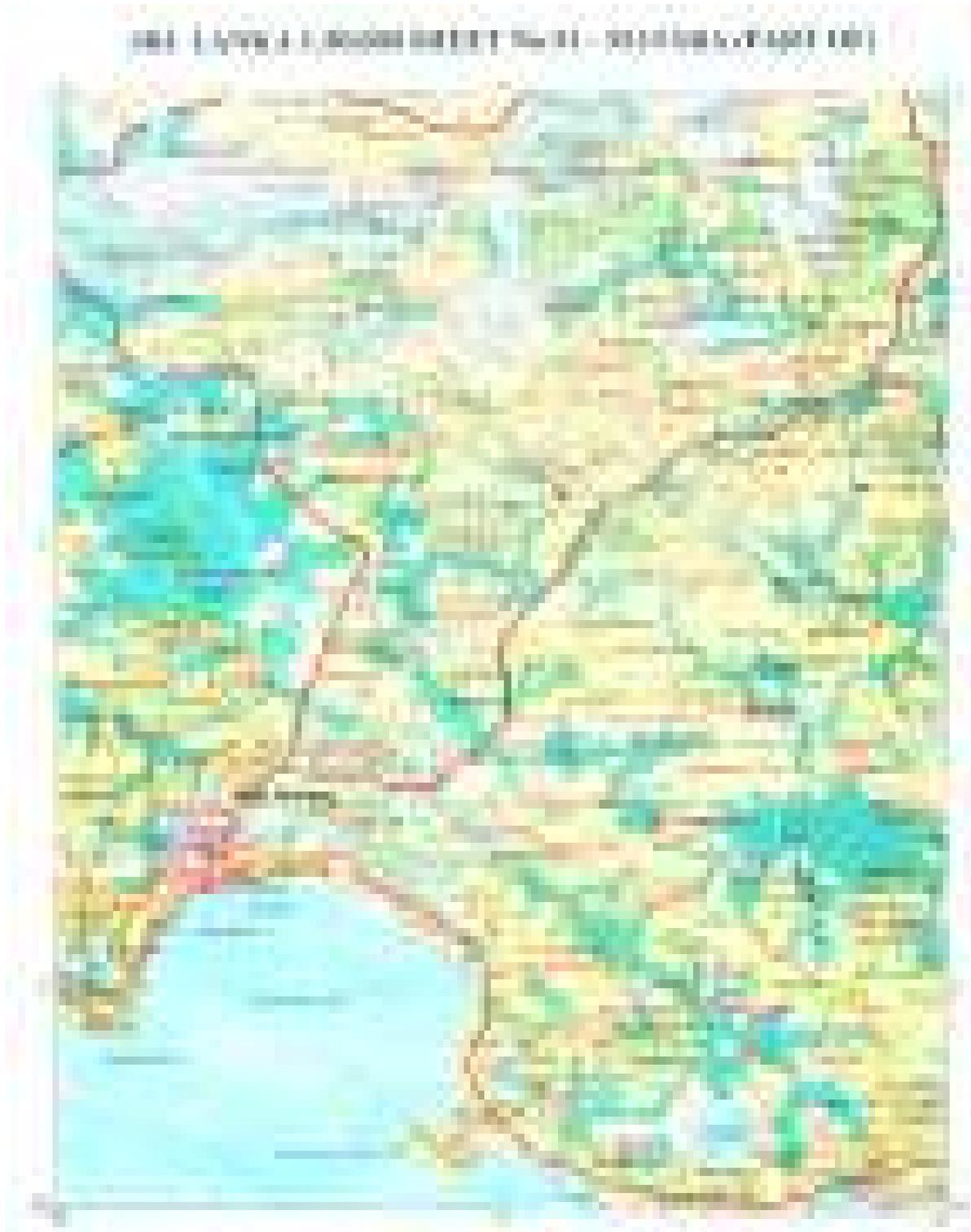
- The aim of this unit is to identify a few selected physical and cultural features depicted in 1: 50,000 topographic maps and to make a study the interrelationships between them.
- The basis of identifying selected physical and cultural features in 1: 50,000 topographic maps which was studied in Grade 8, may be used to build up this unit also. Here, you should make use of the reference which includes the conventional signs and symbols prepared in order to read the 1:50,000 topographic maps.
- In this study, a part of the topographic sheet No. 91 Matara sheet is used.

In this unit, it is expected to study only the physical and cultural features given below.

- Physical features

Ann11

Annex - 1



Annex : 2



Figure showing the conventional signs in the 1:50 000 topographical map

1. Plain
 2. Highland
 3. Main river
 4. Tributary
 5. River valley
 6. Island
 7. Headland
 8. Bay
- Cultural features
1. District boundary
 2. Main roads
 3. Other roads
 4. Railway line
 5. Paddy, tea, coconut, rubber and garden lands
 6. Religious places
 7. School, Hospital, Police Station and Post Office
- Interrelationship between physical and cultural features:
1. Drainage and the distribution of paddy lands.
 2. Relief and the distribution of other cultivated lands.
 3. Plains and roadways
 4. Highlands and the other roads
 5. Coastal strip main roads and railway line
- Give time to study the reference including conventional signs given in the section of the 1: 50,000 topographic map.
- Identifying land and sea areas
 - Identifying highlands and lowlands
 - Identifying the main river and tributaries
 - Identifying bay, lagoon, headland and coastal features

In order to identify the distribution and location of these features, make use of the rough sketch attached.

- Give time to find out the selected cultural features with the help of the reference. Give instructions to prepare a simple Table naming the distribution of those cultural features.

For example:

Paddy cultivation - in the lowlands of the river valley

- | | | |
|---------------------|---|---------------------------|
| Coconut cultivation | - | coastal areas |
| District boundary | - | near the eastern boundary |
- Get the students to write a few sentences on the interrelationship between the physical and cultural features. It is appropriate to conduct a pre-discussion regarding this.

For example: Paddy is cultivated along the river valley because paddy cultivation needs a fertile alluvial soil and flat land.
Tea and rubber are cultivated are on highland areas.

Activity:

Provided an opportunity to the students to do an additional activity in order to confirm the points studied. Here it is required to select a section of the 1:50,000 topographic maps.

- Relevant relief features
- Cultural features
- The interrelationship between them. Here, give them time to write a short note on the inter-relationships.

This could be organized as a single or a group activity.

Quality Input:

1. Annex 1 - A section from the 1:50,000 topographic sheet No. 91, Matara Map
A few of these maps can be obtained from the Survey Department.
2. Annex 2 - A few copies of the reference section which includes conventional signs in the 1:50,000 topographic map
3. Annex 3 - A few copies of the rough sketch prepared according to the section in the Matara sheet.
4. A few sheets of 1:50,000 Sri Lanka topographic maps

Assessment and Evaluation:

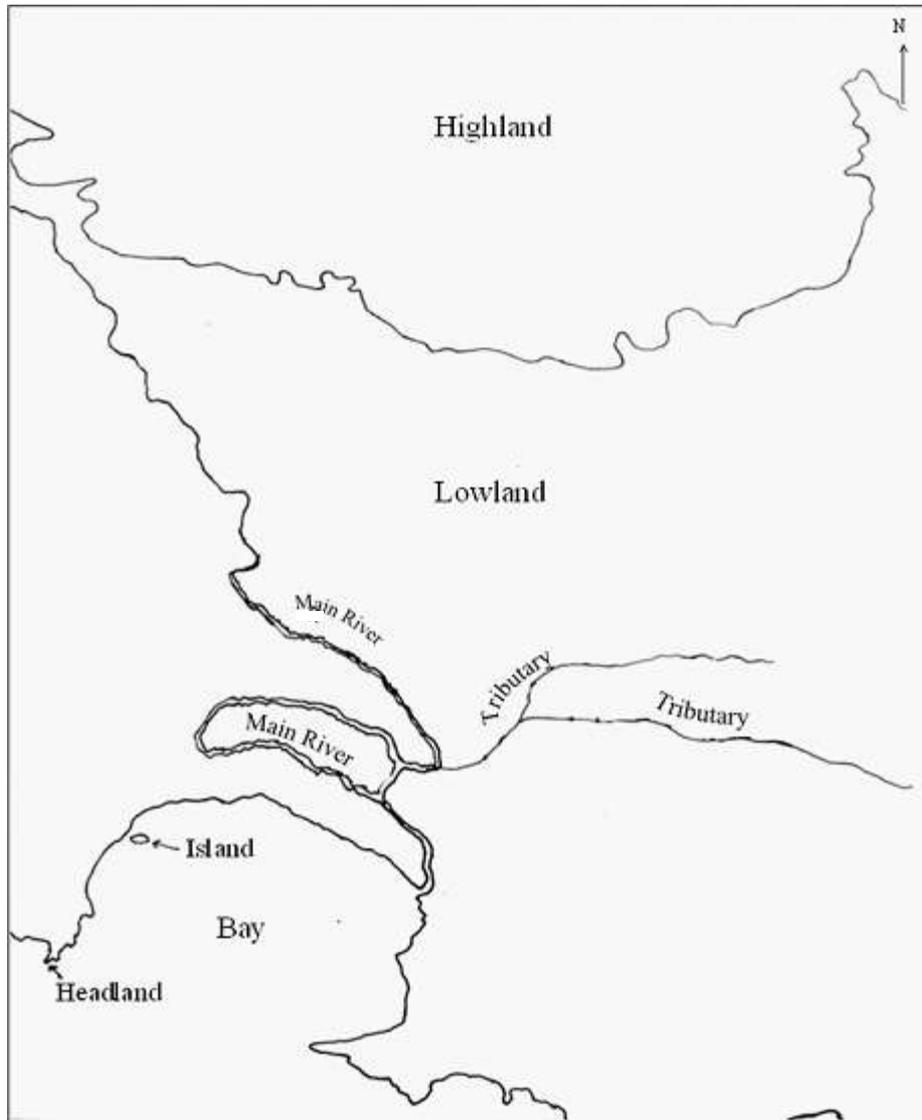
A few criteria that may be used is given below:

Prepare criteria according to them and do an evaluation. For instance,

- Identifies the relevant physical features accurately.
- Identifies the cultural features accurately.
- Identifies the relationship between the physical and cultural features.

Annex : 3

Rough sketch prepared according to a selected section from the Matara sheet



Scale 1: 50,000