CHAPTER ONE

INTRODUCITION

1.1 General Background

According to Nunan, the expression discourse is being used in a number of different ways and there happens to be disagreement on its use. But at least we can say that it needs to be distinguished from the expression text. Here are two attempts to define discourse "1 discourse: A continuous stretch of (especially spoken) language larger than a sentence often of constituting a coherent unit such as a sermon argument Joke or narrative " (crystal 1992) "2 discourse, stretches of language perceived to be meaningful unified and purposive "(Cook, 1989:156).

Discourse is a communication event involving language. In context, it is the language which is used socially convey broad conventional meaning. Discourse refers to continuous stretch of language larger than a sentence, often consisting of a coherent unit. It is also taken as the unit of language which is larger than a sentence. It is a supra-sentential unit of language that is unified and meaningful.

Originally, the word 'discourse' is taken from Latin 'discursus' which also denoted conversation speech. It tries to explain the relationship between language and socio-cultural contexts.

On the other hand, discourse analysis is concerned with the study of the relationship between language and the contexts in which it is used. It has grown into a wide-ranging and heterogeneous discipline which finds its unity in the description of language and an interest in the contexts and cultural influences which affect language

in use. It is an approach to studying language through the perspectives of three functions, social textual and experiential or psychological.

Now while showing the relationship among them the discourse analysis taken as the study and analysis of discourse, The Major goal discourse analysis in language pedagogy is to analyze the stretches of language o that its learners would benefit by knowing its properties and features. It examines how stretches of language become meaningful and unified for their users. It is important for language teaching and learning theories practices, materials and contents.

All linguists are concerned with identifying regularities and patterns in a language. The ultimate aim of discourse analysis is both to show and interpret the relationship between their regularities of patterns as well as meaning and purpose of a language. Discourse Analysis is a new branch of experimental linguistic.

Mainly, language can be studied in two way they are theoretical and experimental point of view. Discourse Analysis is also a part of different sectors of experimental linguistic. It has developed around 1970, then it was started to study of human written and spoken dialogue, (Dhungel, 2068;196). The first credit about the development of discourse analysis goes to H.P. Grace (Dhungel, 2068;196). He has developed new phrases and clauses with detailed concept in his essay, debate and dialogue in 1975. According to H.P. Grace, any language keeps common concept around the speakers. According to Michal Vaccarthy, the study of discourse is such study of language in which it keeps for more stretch than the concept of sentence (Dhungel, 2068;197).

This thesis study is espeally prepared for the educational department of Tribhuwan university second year eng. edu. 526. This research topic is taken from the book

'Heritage of the words' the topic is "Two long-Term problems: Too many people, Too few trees" is written by an inter disciplinarian holding degrees in genetic, philosophy and psychology and with many publications in as entices, ecology, politics, science education and language instruction. This essay is one of the best work to the twin problems of overpopulation and deforestations, written by Moti Nissani. The whole matter of this essay is focused in Nepal's context. In this study, Moti Nissani has tried to focused on the Major ecological problems rising in the Nepal.

The writer express his concerned about deforestation crisis in Nepal. Showing devastating effecting of deforestation in Nepal, the writer makes us conscious about the importance of preservation of forest. According to him, destruction of forest in Nepal will cause soil erosion in every rainfall. The eroded soil will be deposited in the rivers making them shallow and gradually causing siltation of rivers and dams. After the deforestation, every heavy rainfall is likely to cause devastating flood in plains of Nepal, India and Bangladesh. The destruction of forest in turn contributes destruction of human resources. Man-made green-houses affect the loss of many thousands species of animals and plants, landslides, draught and weather extremes. Therefore, besides causing serious flood in Nepal, India and Bangladesh deforestation in Nepal in the long run will also damage the quality of life and the ability of Biosphere to sustain life.

This essay will be analyzed in this thesis work. This study will be widely depended on the variation of the use of connection of the sentences and also focused on cohesion and coherence. This thesis work is useful because it has not been done as the discourse analysis.

1.2 Statement of the Problems

Cohesion and coherence are the important and essential elements of a discourse. They help to connect the ideas and language units in the text. Keeping these points in mind, those elements are studied in the essay 'Two long term problems; Too many people, Too few trees'. The study focused on as the problem which cohesive devices are used in the essay for the linguistic connection of the text and which coherence devices for the creation of meaning relation among the ideas deal in the essay. Hence, the cohesive and coherence devices are taken as the central problem for analyzing the discourse features of the essay.

1.3 Objectives of the Study

The research study has identified some objectives that are the following.

   a. To identify and analyze the cohesion used in the essay 'Two long term problems; Too many people Too few trees'.
   b. To identify and analyze coherence that are used in the essay 'Two long term problems; Too many people Too few trees.'

1.4 Research Questions

I have selected the research topic "Discourse Analysis" on the essay 'Two long term problems, Too many people Too few trees.' This research topic has mentioned the cohesion and coherence of the essay that is played the vital role to connect those thought and expressed subject matter as it is given in the research questions. They are as follows:

a. What are the cohesive words used in the essay 'Two long term problems; Too many people, Too few trees?"

b. How does the coherence play the role for setting relationship between sentences in this essay?

1.5 Significance of the Study

This study is significant for the perspectives researchers on 'Discourse Analysis' is a new innovation of linguistic. It is experimental linguistic. To have the perfect sense of any language, it is inevitable the use of cohesion and coherence in the linguistic sites. This study has taken positive support to add the value in the field of discourse analysis study. It helps to rise the broad connection and puts the extra value of thought and its wideness to the linguistic field which help to improve and up grate the standard of curriculum for the language experts, it helps to the writer to compose meaningful works in the field of writing. This research study also helps teachers, story writers, students, researchers, critic and linguistics so that it keeps important itself.

1.6 Delimitation of the Study

The proposed research study will be limited in the following ways

a. It is focused for the discourse analysis in the essay 'Two long term problems Too many people Too few trees'.

b. It is focused mainly to those words which are cohesion and coherence in the essay 'Two long term problems: Too many people Too few trees' after identifying those used words and then analyze it.

c. This research study is mainly described all the twenty paragraphs of the essay for analyzing cohesive words (cohesions), but for the coherence purpose only

one to tenth and, nineteenth and twentieth paragraphs are identified its relationship, eleventh to eighteen paragraphs are skipped because of its similar uses in coherence.

CHAPTER TWO

REVIEW OF PRE-WORK AND THEORETICAL FRAMEWORK

2.1 Review of Pre-Work

Here is some study and research mentioned in the field of discourse analysis.

Yule (1996:83) Discourse analysis in particular describes investigating the structural mechanisms a written has to dead with when articulating his massage. A speaks in contrast, one getting the turn has to organize what he intends to say consider what the other participants of the conversation know and do not know as well as a massage down instead of talking to other people, the absence (who is now he writer) has to consider back, which makes his massage more complex to organize.

Nuhan (1993:6) According to Hunan, a piece of discourse consists of more than one sentence and the sentences necessarily have to combine to form a meaningful whole to be called a piece of discourse. He also claimed the existence of so called text-forming devices, to be responsible for connecting sentences together to form a meaningful whole and to distinguish them from random sentences. Discourse Analysis also studies these text forming devices.

C.F. DIJK (1985:10), In its full richness Discourse Analysis involves all the levels and methods of analysis of language cognition, interaction, society and culture.

Dhungel and Other (2068 B.S. 195) in the late 1960s and 1970s and without reference to this prior work, a variety of other approaches to a new cross discipline of discourse analysis began to develop in most of the humanities and social science concurrently with, and related to other discipline, such as semiotics, psycholinguistics, socio

linguistic and pragmatism. Many of these approaches, especially those influenced by the social science, favor a more dynamic study of oral talk in interaction. An example is 'Conversational Analysis' which was influenced by the sociologist 'Harold Garfinkel', the founder of ethno methodology Bandari's (2073), 'Acchut Jatii lai Tika Lagauda'. This essay has been prepared as the research study for the discourse analysis in which different four usefulness are mentioned there for the research study.

Gay Cook (2003) We have then two different kinds of language as potential objects for study, one abstracted in order to teach a language or literacy, or to study how the rules of language work and another which has been used to communicate something and is felt to be coherent- This latter kind of language-language in use for communication is called discourse analysis, and the search for what gives discourse coherence is Discourse Analysis.

Discourse may be composed of one or more well formed grammatical sentences and indeed it often does.

Mills (2007, P.199) Discourse analysis can be seen as a reaction to traditional linguistics which is focused on the constituent units and structure of the sentence and which does not concern itself with an analysis of language in use. Discourse Analysis, in contrast to formal linguistics, is concerned with applying the notion of the structure above the level of sentences i.e. talking the analogy of grammatical relations such as 'subject-verb-object', and applying it to the analysis of longer text. Since it is rare for anyone to communicate with others through single sentences along, these discourse analysis are critical of the tendency for linguistics to concentrate solely on sentence structures. This research study is prepared from library based method, in this essay, in total there are one hundred and twenty sentences, in which it is tried to find, analyze

and tabulate of those words that are used in the sentence. This research study has concluded that the words used for making the appropriateness among the sentences are so useful and reasonable and sentences are also composed in simple ways that can clear every massage easy to understand for all.

In this way, there have many researches done in the field of discourse analysis. There have no one who has researched in the topic of 'Two long term problems; Too many people, Too few trees' by Moti Nissani. So it will be supportive document in the field of Discourse Analysis for those students who will keep deep concern to the field of linguistic.

2.2 Usefulness of Pre-Work

Discourse analysis in an emerging subject matter in the research field. Many researchers who have been doing their research study on Discourse Analysis. Dell Hyms, Nunan, Fairclough, Cameron (2007), Michael Vaccarthy, crystal (2008) etc. These researchers who have proposed the point of view on Discourse Analysis. Discourse Analysis is a cover term. It includes several theories, approaches and models of discourse. Some scholars like 'Edmondson, W. (1981), Spoken discourse' Mc. Carthy, M. (1991) discourse analysis for language teacher combridge, CUP, Mill, S. (2007) "Discourse" Nunan, D. (1993), Discourse analysis, these are the research works done by the scholars and it will strongly support in the field of discourse analysis for all interested researchers, the benefits are given below:

a. It will help to rise theoretical concept of study.

b. To specialize the problems.

c. To determine the objectives.

    d.   Save from topic repetition.

    e.   Help to identify the methods and to identify the resources for needy data collection.

These above benefits are clearly seen that the usefulness of discourse analysis is must. So that the essay "Two long term problems; Too many people Too few trees" is the best topic selected for discourse analysis and no one there who has chosen this topic for research work.

Hoping to make an extra example this essay by 'Moti Nissani' will be profitable for the readers, teachers, literary students from which they can easily find the literary levels, to improve the weaknesses for the writer's work, and also for those critics who keep the deep intend to do discourse analysis.

2.3 Theoretical Framework

2.3.1 Introduction of Discourse

Discourse is a continues stretch o language which is larges than a sentence but, within this broad notion, several different application may be found At its most general sense, a discourse is a behavioral unit which has a pre-theoretical status in linguistics, it is a set of utterances which constitute any recognizable speech event eg. a conversation, a joke, a semon, an interview etc. (Crystal, 1997;118).

Discourse is a communicative event involving language in context and discourse analysis is the functional analysis of discourse, (Nunan, 1993;118)

Michael Foucault's view on discourse, is speech or writing seen from the point of view of the benefits, values, and categories which it embodies, these benefits etc.

constitute a way of looking at the world, an organization of representation of experience ideology in the neutral non-pejorative sense. Different modes of discourse encode different representation of experience and source of these representations is the communicative context within which the discourse is embedded. In these sense a discourse is something which produces something else can utterance, a concept and effect rather than something which exists in and of itself and which can be analyzed in isolation. It is not merely linguistic and structural phenomenon, but social and cultural practices of language that can influence and shape the world issues, and that is shaped by social practices.

Foucault's second view on discourse "an individualize group of statements" he is discussing a particular structure with in a discourse. He is concerned to be able to identify discourse that is group of utterances which seem to be regulated in some where and which seem to have a coherence and a force to than in common. It means, discourse is a coherent language stretches to represent social institutional ideologies.

In this sense, a discourse is something which produces something else utterances, a concept, an effect rather than something which exists in and of itself and which can be analyzed isolation so "Foucault" has described this connection between the production of knowledge and power relations as power/knowledge

2.3.2 Definitions of Discourse

(Crystal, 1992, p.25) Discourse is a continuous stretch of a language larger than a sentence, often consisting of a coherent unit.

Nunan, (1993) Discourse is a communicative event involving language in context and discourse analysis is the functional analysis of discourse.

Henry and Tator, (2002) Discourse is the language which is used socially to convey broad conventional meaning; it is language identified by the social conditions of its use by who is using it and under what conditions.

Cook, (1996) Discourse refers to the stretches of a language perceived to be meaningful, unified and purposive.

Crystal, (1997) Discourse is a continuous stretch of language which is larger than a sentence but, within this broad notion, several different application may be found At its must general sense, a discourse is a behavioral unit which has a pre-theoretical status in linguistics it is a set of utterances which constitute any recognizable speech event eg. a conversation, a joke, a sermon, an interview etc.

(Michel Foucault cited ibid) In stead of gradually reducing the rather fluctuating meaning of the word "discourse" I believe I have in fact added to its meanings; treating it some times a general domain of all statements sometimes as an individualizable group of statements, and sometimes as a regulated practice that accounts for a number of statement.

Oxford Advance learner's dictionary (Indian Edition 1989) by A.S. Hornby continuous piece of spoken or written language; analyze structure of discourse or talk preach or lecture about something.

2.3.3 Types of Discourse/Discourse Types

Discourse in general sense can be of vicious types them the following types are of worth discussion.

English discourse can be divided into there contrasting levels such as oral (spoken) and written discourse, reciprocal and non-reciprocal discourse and transactional and interaction discourse.

2.3.3.1 Spoken and written discourse

Spoken discourse is often contrasted with written discourse is terms of terms of form and medium of expression. However, some linguists also suggest that "dividing the field according to the medium speech verses writing" is already out moded, and becomes increasingly difficult to justify in the digital age of multimedia texts, including not only spoken and written texts but also graphic devices still and moving images, music etc, (Cameron 2001) Thus, "spoken discourse, however this classification is largely important and relevant to the L2 teaching and learning contexts. Both spoken and written discourse have to be dealt with in an L2 classroom. The learners are expected to develop proficiency in both under standing and producing the spoken and written discourse (Nunan, 1993) characterizes, there important issues that show different between written and spoken discourse (a) Grammar (b) Lexical density (c) situations

2.3.3.2 Reciprocal and Non-reciprocal discourse

The discourse typology under reciprocal and non-reciprocal is based on the discourse feature named "reciprocity" that is relative in nature and refer to the tendency of two-way communication. This is based on the possibility of the degree of potential interruption interaction by the receiver of the communication. A discourse is reciprocal if there is possibilities of interaction between participants. A face to face interview, conversation, dialogue etc. are the examples of reciprocal discourse which

has typically higher degree of reciprocity. Reciprocity has the possibility of interaction from the recipient side.

On the other hand, in non-reciprocal discourse the sender and receiver may have chance of any intervention and interaction. In non-reciprocal discourse the sender and receiver may not have opportunity to face to face conversation. The prototype of non-reciprocal discourse is a book by an author. It is beyond the reader's power of exercising any, influence on the development of characters, plot and course of events.

2.3.3.3 Transactional and interactional discourse

They can be described by their goals or functions in a given context of communication. The transactional discourse refers to the use of language for context expression which is oriented to accomplishing particular task, business or context. This sort of language function is used for the exchange of goods and services and meant for 'content', expression transactional discourse is primarily for fulfilling occupational, official or formal relationship.

On the other hand, when the discourse is used for phatic communication to establish and maintain social relation and expressing our personal feeling, sentiments, emotions and attitudes. It is purely for socializing purpose and also called interpersonal discourse which I concern with human heart. Instructional discourse is mainly for establishing interpersonal relationship between the participants.

2.4 System study of discourse analysis

It means to say that the study of a topic for discourse analysis is inevitable but it is a strong point to consider how and from where this research study starts from. Without

conforming the perfect method of studying a topic, can be aimless study. So that it is most necessary to keep balance between linguistics and sensible structuring of a sentence for a discourse analysis. So, to do discourse, this is must to select a topic which is for further study as a discourse analysis. The research study has already developed to search linguistic and meaningful units, which leads a topic to study from sentence to lesson, following the lesson to the sentence or analyze the subject where necessary. It details the uses of language relationship between linguistic units and linguistic efficiency in order to describe the discourse analysis successfully.

2.4.1 Ascending method of study

This theory has emerged by Nunan, Camborn, and Gay Cook. It is the stystem of study through simple to complex of discourse analysis. It is also called ascending method of study in which it studies sentences first and then the lesson while describing discourse analysis. It analyzes sentences first then paragraph and at last the lesson whole. This study is focused on describing from small units first and then the searching of wide and stretch units.

2.4.2 Descending method of study (complex to simple)

This system has been developed by Nunan, Devid and Gay Cook. It studies a lesson from complex to simple which is called descending method of study. At first wide linguistic units are described and then small linguistic units. It studies lesson first then paragraphs and sentences at last. In which this studies tries to find the wide connections, arrangements and sensible meaningful combination of the paragraphs with the sentences for discourse analysis.

2.4.3 Interactional methods of study

This method of study has been developed by Russian linguist 'Stonviy' around 1980s. It has been due to the weaknesses of ascending and descending method of study in the discourse analysis while describing research analysis. This system can be called complex types of system. In this method if there have any mistakes in the first step of research, that can be able to improve in the second step and, this method doesn't need to resume from the fixed way. Any method, descending or ascending can be used while doing research work for discourse analysis.

2.5 Elements of Discourse

The discourse becomes "unified an meaningful" because of the linguistic regularities, or tries within it. The intersentential (rather than intra sentential) regularities can be seen in the spoken and written discourse, as a result of cohesive or linking devices, information structures, theme-rheme, patterns, rhetorical patterns, and as so on. The term of ethnography of communication was proposed and developed by Dell Hymes. He has proposed an ethnographic framework which takes into account the various factor that are involved in 'SPEAKING' Dell Hymes suggested that any communicative use of language or speech event, is constituted by seven distinct factors, each associated with a different function. They are speaker, written hearer, reader, massage, code, topic, channel and time.

An ethnography of communicative event is a description of all the factors that are relevant in understanding how that particular communication event achieves it's objectives. For convenience, Hymes has used the word SPEAKING as an acronyms as an aid memory. The factor are described below:

2.5.1 Setting and scene

The setting and scene of speech are important setting refers to the time and place. scene refers to the abstract psychological setting or the cultural definition of the occasion.

2.5.2 Participant

Participants are important in every speech situation. The language use always influenced by the characteristics or identities of the participants. According to the faces, status, power, education, gender, age and other similar social factors of the participles specific language forms and varieties are used. The participants include various combinations of the speaker, listener, addressor, addressee or sender receiver. They generally play certain socially specific roles in different setting.

2.5.3 Ends

'End' refers to the conventionally recognized and expected outcomes of an exchange as well as to the personal goals that participants seek to accomplish on particular occasions.

2.5.4 Act sequence

It refers to the actual form and content of what is said, the precise words used, how they are used and their relationship of what is said to the actual topic at hand.

2.5.5 Key

It refers to the tone, manner or spirit in which a particular massage is conveyed light hearted serious precise, pedantic, mocking, pompous and so on. These key may also

be marked non-verbally by certain kinds of behaviours, gesture, posture, or even deportment when there is a lack of fit behaviours what a person is actually saying and the key that the person is using listeners are likely to pay more attention to the key than to the actual content eg. to the burlesque of a ritual rather than to the ritual itself.

2.5.6 Instrumentalities

It refers to the choice of channel eg. oral written or telegraphic and to the actual forms of speech employed such as the language, dialect, code, or register that is chosen eg. formal, written, legal language is one intrumentality.

2.5.7 Norms of interaction and interpretation

It refers to the specific behaviors and properties that attach to speaking and also to how these may be viewed by someone who doesn't share eg. loudness, silence, gaze, return and so on.

2.5.8 Genre

The final term 'genre' refers to clearly demarcated type of utterance, such things as poems, proverbs, riddles, sermons, prayers, lectures and editorials. These are all marked in specific ways in contrast to casual speech.
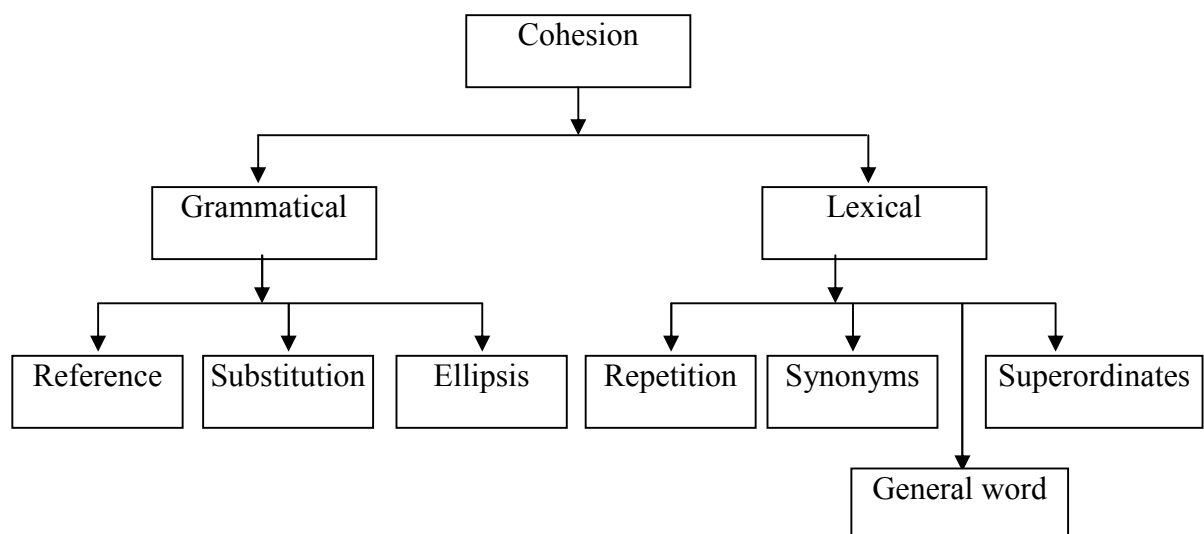
2.6 Methods of discourse

Discourse studies the sentences and clauses of its perfect relationship with the words, called cohesion and coherence. 'Discourse' is speech or writing seen from the point of view of the beliefs, values and categories which is embodies these; beliefs, etc. The

appropriate connection adds the more perfect sense than the sentence says, so studying about its kinds is very important while doing a job of discourse analysis.

2.6.1 Cohesion

Cohesion is the grammatical and the texical relationship within a text or sentence. It can be defined as the links that hold a text together and give its meaning. The terms cohesion refers to the formal links between sentences and clauses. Cohesion plays very important role in a discourse to create 'texture' a quality of being well formed text and to make it a well formed stretch of language. Yule (2008) defines cohesion as the ties and connections that exist within a texts or discourser. It consists of certain linguistic devices which help in producing a sequence of sentences. The sentences or utterances are connected within a discourse with the certain kinds of cohesive devices eg. Ram is a boy. He is a student here, the connection between 'Ram' and 'He' refers to the cohesion. Halliday and Hasan (1976), identified the different types of cohesion (a) reference (b) substitution (c) ellipsis (d) conjunction (e) lexical cohesion

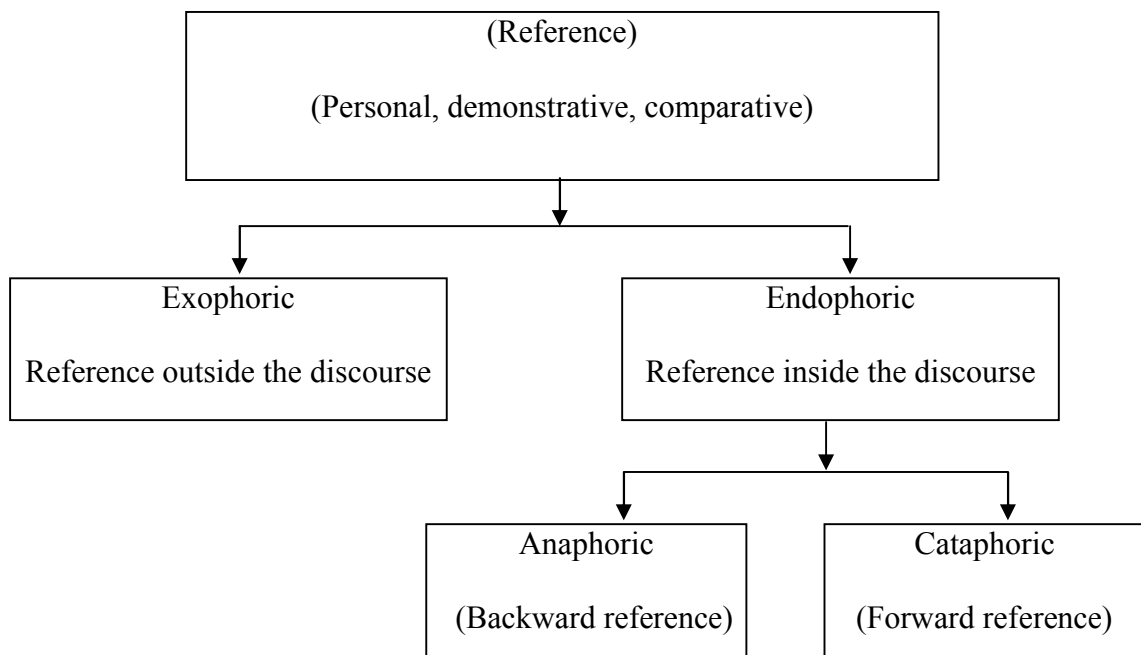Likewise cutting (2008) classifies the cohesive devices as follow.

2.6.1.1 Cohesion through references

Halliday and Hasan (1976) has identified there types of reference cohesion they are,
(a) personal (b) demonstrative (c) comparative

The personal reference is expressed through pronouns and determiners. They serve to
identify individual and object that are hammed at some other point is the text.
Demonstrative references are expressed through datelines   and adverbs. Comparative
reference is expressed through adjective and adverbs.

Finally the types of referential expressions can be show in the diagram as below.

```
┌─────────────────────────────────────────────────┐
│                  (Reference)                      │
│     (Personal, demonstrative, comparative)        │
└─────────────────────────────────────────────────┘
              │
      ┌───────┴────────────────────┐
      ▼                            ▼
┌──────────────────┐    ┌──────────────────────────┐
│    Exophoric     │    │       Endophoric         │
│ Reference outside│    │  Reference inside the    │
│  the discourse   │    │       discourse          │
└──────────────────┘    └──────────────────────────┘
                              │
                      ┌───────┴────────┐
                      ▼                ▼
              ┌──────────────┐  ┌──────────────┐
              │  Anaphoric   │  │  Cataphoric  │
              │  (Backward   │  │  (Forward    │
              │  reference)  │  │  reference)  │
              └──────────────┘  └──────────────┘
```

2.6.1.2 Cohesion through substitution and ellipsis

Both substitution and ellipsis are the devices for grammatical cohesion; these are
virtually different from reference. Substitution is defined as the replacement of one
item by another and ellipsis as the omission of an item in discourse. Essentially the

two are the same process ellipsis can be interpreted as that form of substitution in which a part or segment item of discourse is replaced by 'Null' item or by nothing. It has also three type as substitution, they are (a) Nominal (b) Verbal (c) Clausal

Examples [2.1]   A :   Annie says you drink to much.

                 B :   So do you. (verbal substitution)

[2.2]   A :   Have you ever been there?

                 B: Yes, I have. (verbal ellipsis)

[2.3]   A :   Is it going to rain?

                 B :   I think so. (clausal substitution)

[2.4]   A :   Paul is coming for dinner.

                 B :   But he didn't tell me. (clausal ellipsis)

2.6.1.3 Cohesion through conjunction

Conjunction is a device to presuppose a textual sequence and to signal a relationship between segments of the discourse. Conjunction are those words and phrases with explicitly show the relationship which exists between one sentence or clause and another.

Halliday and Hason (1976) discovered four types of conjunctions (conjunctives) in English.

- Additive: (and, both-and, further more, in addition to, etc.)

- Adversative: (however, despite, but, although, etc.)

- Causal: (so, therefore, for since, because, etc.)

- Temporal: (first, then, before, after, next, etc.)

2.6.1.4 Lexical cohesion

Lexical cohesion refers to the semantic relationship between two words of a text. It means the words are related in terms of their meaning. Lexical cohesion can create some sort of chain of meaning within a discourse.

Halliday and Hasan (1976), presented two types of lexical cohesion.

2.6.1.4.1 Reiteration

Reiteration can be seen in various ways such synonyms, super ordinates and geranial words. Sometimes it is called repetition. It refers back to the previously intoned entity. Thus, reiteration fulfills a similar semen function of the coherence reference.

2.6.1.4.2 Collocation

Collocation can be defined as the co-occurrence of individual lexical items It plays a crucial role in the area of discourse analysis. It refers to the relationship of co-occurring lexical items within discourse because of associated in them.

Cutting has classified lexical cohesion in (a) Repetition (b) Synonyms (c) Super-ordinates (d) general word

2.6.2 Coherence

The term cohesion is often confused or conflated with coherence. But it is necessary both from a theoretical and a practical point of view to retain this distinction between surface and content. The term coherence concerns the ways in which the combatants of the textual world, thus the concept ad relations which underlie the surface text, are mutually accusable and relevant (Beaugrande & Dressie, 1998).

Coherence is grammatical and semantic inter connectedness between sentences that form text. It is the semantic structure, not its formal meaning which create coherence. Coherency is a condition where sentences is a text hand together. It can occur in of sentences that immediately follow each other coherency grammatically arises when a text contains transition signals or when it processes consistent pronoun, semantically, a text is said coherence when there is unity of meaning among elements of the text.

The term coherence in discourse analysis refers to the main principle of organization postulated to account for the underlying functional connectedness of spoken or written discourse.

The coherence can be characterized from two perception one in term of linguistic quality of being unified, cohesive and meaningful and next in terms of communication quality that is concerned with experiences conversion shared knowledge etc. of the participants of discourse.

Following crystal (2008), Nunan (1993), Cook (1989) and Mc carthy (2010) let us explore the general application of the term coherence in discourse analysis and in English language teaching and learning being particularly concerned to the following issue.

2.6.2.1 Negotiating meaning in context

Nunan (1993,p,9) argues that all but the most constrained interactions are the result of the other. This is joint effects reflected in the amount of negotiation which is required in order for conversational participants to say on track that is for speakers to ensure that their massage are being received in the way they intended and for the listeners to ensure that they are interpreting what they heavy correctly.

The concept 'negotiation of meaning' suggests that discourse coherence is something that exists in communication strategies of the speakers.

2.6.2.2 Functional analysis and coherence

We have examined the role of cohesive devices in creating coherence in discourse. These device such as reference conjunction, lexical cohesion etc. link up the idea and items of a discourse so that the discourse becomes unified and meaningful.

Cook (ibid) argues that if we can assertion the function of utterances, we will be able to perceive a unity dissects kind. This we can see that the sentence 'The window is ops can have many different functions depending on who says to whom and in what situation said by a husband to a wife in the midnight it might function as an expression of worry said by a head teacher to pupil it might well function as an order. The sequence of utterances with appropriate interpretation makes coherence for the users of a language.

2.6.2.3 Speech act theory and coherence

Cook (ibid, p.3) states that inferring the function of what is said by considering its form and context is an ability which is essential for the creation and reception of

coherent discourse and thus for successful communication the principles of politeness and co-operation are not on they own enough to provide the explanation for this inference do this we also need knowledge of physical and social word. We can also need to make assumptions about the knowledge of the people with whom we are interacting.

An approach which tricks to formulate has such knowledge is brought into play is speech act theory. This was first formulated by the philosopher 'John a series of lectures. These ideas were further developed by another philosopher, john Searle (1969,1975) who both added them and presented them more systematically.

Speech act theory which relates the functions utterances to self of fee city conditions may help us to understand the unit of exchanges in communication. It provides us with a means of establishing the function of utterances and their conditional meanings. Proper under standing and production of speech acts make the discourse coherent and communicative the speech acts have locutionary illocutionary and elocutionary forces. These underlying forces are to be understanding by the participants of the discourse when the understand taken palace, the coherence of the discourse is established.

CHAPTER THREE

METHODLOGY

3.1 Design of the Study

The mean concern of the researcher in the present study is to study and to analyze the essay 'Two long term problems, Too many people Too few trees' is written by a famous geneticist, philosopher and psychologist 'Moti Nissani' this essay provides a brief introduction to the twin problems of overpopulations and deforestation, especially written for this book, especially in Nepal's context. This research study has been focused of those basic analytical uses of cohesion and coherence within this essay in the discourse analysis. Basically this research study has been used library-based method. This is analytical types of study. This research study has been prepared for collecting reliable sources from different related creations, literary works, critiques and those related research study that has already prepared in the field of discourse analysis.

3.2 Data Collection Tools

This research study has adopted the two main source to collect the data collection which are fully depended on the following.

(a) Primary source

It has mentioned the essay "Two long term problem; Too many people Too few trees' written by Nissani as a primary source.

(b) Secondary sources

This research study has followed different books logical work critics and the research thesis related to the field of discourse analysis and discussion with experts, their valuable suggestions and hints. The same way lots of related works are found and studied from the internet to make it complete task.

3.3 Data Collection Procedure

Especially the essay 'Two long term problems; Too many people Too few trees', has been selected for discourse sis and has been used library-based methods to it analytical methods of study is used here in this essay for discourse.

3.4 Data Analysis and Interpretation Procedure

This search study has an aim to do discourse in this essay to find the roles of cohesion and coherer by showing then in tabulation of each sentence and paragraph so that it has made so easy to in linguistic form for qualitative analysis and them the research study has been concluded to discourse analysis and the usefulness of cohesion and coherence within this study.

CHAPTER FOUR

ANALYSIS AND INTERPRETION

4.1 Introduction

This essay is the best example and concerning to the matter of recent resinous problems of Nepal in which the written 'Moti Nissani' has mentioned the twin problem 'Two long term problems; Too many people Too few trees' of Nepal. This research study has focused on 'cohesion' and 'coherence' using for making the sentences are meaning full to the matter of discourse analysis. It helps to analyze the essay by making completed and meaningful relationship among the sentence and details the perfect sense of the paragraph and the whole essay for the readers.

4.2 Identification and Analysis of cohesion used in the sentences of the essay 'Two long term problems; Too many people Too few trees'.

The research study has interpreted of cohesion for each paragraph repeatedly of the given essay. It has also mentioned there those words which have shown the outline relationship of cohesive words and these are shown in the table defining with their different natures of using into the sentence. Each paragraph has been studied separately from sentence by sentence from where we have identified the words.

4.2.1 Identification and analysis of cohesion used in the fist paragraph of this essay

In first paragraph of the essay 'Two long term problems; Too many people Too few tress' has five sentence. The cohesion's identification and analysis into the sentences is given below.

1. In 1992, over fifteen hundred of the world's scientists in culling more than half of all living Nobel prize winner signed The world scientists warning to humanity.

2. This document reflects growing concerns about the stage of biosphere human beings and the natural world are a collision course.

3. Human activities inflict harse and often irresversible damage on invironment and on critical recourses.

4. Lf not checked many of our current practices put at serious risk the future that we wish for human society and the plant and animal kingdoms and may so alter the living world that it will be unable to sustain life in the manner that we know.

5. Fundamental changes are urgent at we are to avoid the collision our present course will bring about.

In this table, it is shown the cohesion identification and analysis of the first paragraph of the essay.

Table 1: Cohesion in first paragraph

S.N	Cohesion	Given / Used word	Symbolic meaning
1 & 2	Preposition	in	
	Preposition	over	
	Comparative	more than	
	Common noun	world's scientists	
	Demonstrative	this	
	Preposition	about	
	Conjunction	and	
	Determiner	the	

3-5	adverbial	often	
	preposition	on	
	conjunction	if	
	time	future	
	demonstrative	that	
	conjunction	and	
	adverbial	so	
	personal	it	
	conjunction	if	

As it is given the use of cohesion in the first and second sentence are as follow preposition reference are in, over about, are used in the first and second sentence in this way 'more' that is used for comparative reference, 'world's scientists' is used as a common reference 'this' is a demonstrative reference conjunction is used for 'and' 'the' is for determiner. In the some way 'only' are adverbial word is found as often, 'on' is used as prepositional reference 'is', 'on' is used a prepositional reference 'if' and 'and' are used as conjunction reference 'future' is the time ref. 'it' is used as personal reference and 'that' is used as demonstrative reference.

By using these deferent returnees are used to make interesting beginning of the essay. These words are played vital role to stretch the enough sense of beginning of the first paragraph there all cohesion make the essay more waited paragraph no-2 of this essay is suppurated into the three sentence below.

Paragraph Two

1. In an unusual joint statement of the same year the royal society of London and the us. National academy of science concurred the future of our planet is in the balance.

2. Sustainable development can be achieved but only if irreversible degradation of the environment can be halted in time.

3. The next 30 years may be crucial.

In the second paragraph, there are three sentences combined each other with the meaning full sense.

Table 2: Cohesion in second paragraph

S.N	Cohesion	Given / Used word	Symbolic meaning
	Preposition	in	
1-3	preposition	of	
	determiner	the	
	time reference	same year	
	common noun	royal society	London's
	personal noun	U.S.	United States
	conjunction	and	
	Time	future	
	Conjunction	but only	
	Conjunction	if	
	Time	in time	time period (30)
	Time	Next	Year
	Time	30 years	

Above three sentence have composed with many cohesive references, There are in, of used as prepositional reference, thus 'same year, future, in time, next and 30 years, are the time reference which cover the time period for human warnings determiner is the

common noun ref. is 'Royal society' personal noun ref. 'U.S.' and 'and' 'but' 'only' and 'if', these are conjunction references.

So these sentences combination make the paragraph meaningful and rise the essay's standerds. Moti Nissani has drown the attention to all concerned sectors about the risks of deforestation and over population problems.

Paragraph - Three

This is the introduction and analysis of cohesion of the third paragraph of this essay.

1. The facts speak for themselves.

2. The chances of contracting cancer, emphysema or asthma are for higher now than they were a century ago.

3. Human sperm counts in many localities are worrisomely low.

4. Many of us suffer from premature hearing loss traceable to excessive noise.

5. We work longer hours than our parent did and spend more time getting to and from work.

6. We are troubled by the effects f such things as head and dioxin on our children's intelligence and heath.

7. We think twice now a days before plunging on hot summer days, into possibly contaminated rivers lakes or seas.

8. We can no longer experience true wilderness.

9. We are uneasy about poisons in our food and drinks; in our homes and workplaces, in our air, water, and soil; in our brains and livers; in our pets, domestic animals, lawns and farms.

Table 3: Cohesion in third paragraph

S.N	Cohesion	Related words	Symbolic meaning
	Demonstrative Modifier	the	
1.-3	Preposition	for	
	Reflective pronoun	themselves	
	Conjunction	or	
	preposition	for	
	Comparative	higher	
	Adverbial	now	
	Conjunction	than	
	Time adverbial	a century ago	
	determiner	many	
	adverbial	worrisomely	
4-6	Preposition	From	
	determiner	many	
	comparative	longer	
	time	hours	
	comparative	than	
	conjunction	and	
	time	more time	
	preposition	by	
	determiner	such	
	comparative	as	

7-9	Time adverbial	twice	
	Time adverbial	Now a days	
	Conjunction	before	
	conjunction	or	
	time	no longer	
	preposition	about	
	place	workplaces	in our homes
	Common noun	pets	Domestic cats, dogs, cows

In the third paragraph, there are nine sentences and the table has tabularized cohesions identification and analysis in the above. From one to third sentence meaning words are used 'The' is used as demonstrative modifier, 'for' preposition ref. is repeated 'themselves' is a reflective ref. conjunctions are 'or' and 'than' adverbial modifies are 'now' and 'worrisomely' adverbial (time) reference are 'now' and 'a century ago' comparative reference is used as higher and many is the determiner reference.

In this way the sentence from four to six, cohesive words are the following. There are two 'from' and 'by' used as preposition ref. Determiners are 'many' and 'such' in this way comparative references are 'longer' 'than' and 'as'. Time adverbial reference are 'hours' and 'more than'.

The same way the cohesive words are used there in the seventh eighth and ninth of the third paragraph of this essay. There are three time adverbial words are uses just like 'twice' 'now a days' and 'no longer' conjunction references are 'before' and 'or' in this way about is used for prepositional reference 'work places' and 'pets' is used for common noun reference where as workplaces to the domestic animals.

The above cohesive words which are tabularized helps to make the sentences more perfect than its written form and the combination of the sentences in this paragraph makes the paragraph more sensible and meaningful.

Paragraph – Four

This is the fourth paragraph of the essay of the related topic and there are thirteen sentences which are studied for cohesive words.

1. We are surrounded by signs of global environmental decline.

2. Worldwide some species of frogs, salamanders and penguins are declining.

3. We have apparently learned nothing from the extinctions of the dodo and the great auk of the passenger pigeon and the moa.

4. The continued existence in the wild of the most human like minds we know of those of apes and cetaceans is in doubt.

5. Entire fisheries are collapsing.

6. Every hour we add 10,000 people t our members, acting as if there are no such things as carrying capacity and future generations as if we have learned nothing from the environmental failures of earlier civilizations.

7. We squander numberless resources unsustainably acting as if each and every recourse is replaceable.

8. We continue to produce plutonium and other long-lived poisons, even though we know that nothing on earth can be safely sequestered for millennia.

9. We continue to litter space.

10. When we fight pollution, we typically try to partially clean things up after the fact instead of opting for the cheaper and healthier path of prevention.

11. More harmful ultraviolet rays from the sun reach us how a days raising the specter of skin cancer and cataract epidemics.

12. Soil erosion, desertification, and deforestation are proceeding apace.

13. We are seeing already the first signs of human-indices climate changes doing little more than crossing our fingers and praying that dive predictions of sizzling temperatures, floods tropical diseases and mass migrations will prove wrong.

Table 4: Cohesion in Fourth Paragraph

S.N	Cohesion	Given / Used word	Symbolic meaning
	Preposition	by	
1-4	Adjective modifier	world wide	
	indefinite determiner	some	
	adverbial	apparently	
	preposition	from	
	conjunction	and	
	noun	great	great auk
	comparative adj.	most	
5-9	common noun	entire	
	determiner	every	
	conjunction	as	
	conjunction indefinite	if	
	demonstrative	nothing	
	preposition	from	

	adverbial	earlier	
	determiner	each	
	determiner	every	
	place	on earth	
	prepositional	from	
	time	millennia	
10-13	interrogative	when	
	conjunction	after	
	comparative (sub modifier)	more	
	adverbial	now a days	
	adverbial	already	
	adverbial	first	first signs
	demonstrative	that	
	collective noun	mass	mass migrations
	comparative	than	

The sentence from one to thirteen there are two preposition cohesive word are used as 'by' and from 'world wide'. Adjective modifier, 'and' is repeated there in the second and third sentence which is introduced as a conjunction reference 'Apparently' is an adverbial word where as 'some' is used for indefinite determiner 'most' known as comparative reference and 'great' the word is noun reference.

In this way some cohesive words are in the fifth sentence are table tense, there are two conjunction 'as' and 'if' used for determiner are 'every' and 'each' where the word 'every' is written twice. 'From' is also repeated there as the preposition ref. 'earlier' is

an adverbial ref. 'nothing' is used there for demonstrative indefinite pronouns, time reference is 'millenia', 'entire' is common noun ref. and 'on earth' is known there as the place code reference.

And from the tenth sentence to thirteenth sentence are studied in this paragraph in which the cohesive words are detailed the cohesive word 'when' is known there as an interrogative pronoun conjunction reference are a 'after' and in stead of comparative references are 'move' and 'than' in this way adverbial reference are 'now a days' already and first demonstrative reference is 'that' and collective noun reference is 'mass' is used there.

As it is studied sentence by sentence it helps to stretch the sentences in mioro-study in which every thing finds such a finite way of composing of this essay for the matter which the writer has intended to say.

Paragraph-Five

This is the fifth paragraph and it has four sentences combined its sense t each other for making the complete meaning.

1. It takes a great deal to study and reflection to understand the nature, causes, consequences and cures of just one of these environmental ills.

2. No comprehensive coverage of any single ecological issue can be undertaken in this brief, introductory essay.

3. In stead I shall only limit myself to a few cursory remarks about two major interrelated challenges, overpopulation and deforestation.

4. In doing so, I hope to alert you to the seriousness of both and to the need for collective and personal actions.

This is the studies of those cohesive words from the sentence and written down in the table.

Table 5: Cohesion in fifth paragraph

S.N	Cohesion	Given / Used word	Symbolic meaning
1-4	Adjective	great	
	Conjunction	and	
	Adverbial	Just	
	Determiner (nouns)	one	
	Prepositional	of	
	Demonstrative	these	
	Demonstrative indefinite	only	
	Adjective	single	
	Conjunction	instead	
	Reflective	myself	
	Determiner	few	
	Preposition	about	
	conjunction	and	
	Preposition	for	
	Conjunction	both	
	Conjunction	so	
	Adverbial	only	

There are different conjunction reference used as 'and' instead 'both' and 'so', prepositional reference are 'of' 'about', and 'for'. 'Great' is mentioned there as adjective point of view, 'one' and 'few' are the determiner reference demonstrative reference is 'these' reflective reference is 'myself' the word 'single' is too know a adjective reference and adverbial reference is know as 'only' in this paragraph which make the sentences interesting.

Paragraph - Six

In this paragraph, the essayist has included in total eight sentences. He has empowered the sentences with the use of different cohesive words.

1. Human populations have always been in flux for the simple reason that everyday some people die while others are born.

2. Throughout-most of human existence, the number of births was slightly higher than the number of death, consequently, word populations grew at a very slow rate.

3. A few hundred years ago, however, the situation began to change especially in the industrialized world.

4. With advance in nutrition sanitation and health people live longer and more of them reach reproductive age.

5. Thus for the first time in our species existent the balance the number of death and births has been significantly disturbed.

6. Consequently during the last three centuries or so, the I bal human population has been rapidly going up.

7. Every year in fact the world's population grown by more than 80 million people.

8. It is for instance, so being to re call that for every eleven human being alive now only one was alive in the year 1950.

Here is detailed the cohesive words in the table and identified their characteristics of each one there.

Table 6: Cohesion in Sixth paragraph

S.N	Cohesion	Given / Used word	Symbolic meaning
1-4	Proper noun	Human population	
	Adverbial	Always	
	Demonstrative	that	
	Indefinite determiner	some	
	Conjunction	while	
	Adjective	most	
	Comparative	higher than	
	Adverbial	very	
	Time period	hundred year	
	Adverbial	ago	
	Preposition	with	
	Noun reference	longer	
5-8	Adverbial	thus	for the first time
	Time	first time	
	Preposition	for	
	Conjunction	and	
	Adverbial	significantly	

	Preposition	during	
	Adverbial	last	
	Time period	three centuries	
	Adverbial	rapidly	
	Determiner	every	
	Adverbial	in fact	
	Conjunction	by	
	Comparative	more	
	Adverbial	for instance	
	Demonstrative	that	
	Adverbial	only	
	Determiner	one	
	Adverbial	now	
	Common noun	year	in 1950

In the above table, the cohesive words are identified this way, noun reference are
'human population' and larger adverbial references are 'always', 'very' and 'ago' that is
a demonstrative reference 'some' is known as determiner 'while' is a conjunction
adjective reference is most comparative reference is 'higher than' time period
reference is 'hundred years' and preposition reference is 'with'.

In this way fifth sentence to eighth sentence many adverbial words are used like 'thus'
significantly, last, rapidly, in fact, for instance, only and now preposition reference are
'for' and 'during' and by used as conjunction reference, time reference are first time
and three centuries every is determiner, more is comparative ref 'that' is demonstrative

ref, 'one' is also a determiner and 'year' the word is known as common noun reference, these words sequences make the sentence more usefulness and remarkable.

Paragraph-Seven

In this paragraph there are eight sentences included and the are separately written below to study the cohesive words from each sentence and its characteristics.

1. As just one concrete example of his expiation growth consider Nepal.

2. In 1951, Nepal's population was 9 million.

3. Less than half a century later that number rose to 23 million.

4. And with an annual growth rate of 2.5% and with the average Nepali woman giving birth to five children, there is no end in eight to this alarming growth.

5. By this year's end there will be roughly 575,000 more Nepal's alive than at its beginning.

6. By the end of 1997, yet another. 589,000 will be added, so that by the beginning of the third millennium, Nepal's population will be over 24,000,00.

7. If this trend continues unchecked, Nepal's population will double in just 28 years, reaching by the year 2026, a total of some 46 million.

8. In 140 years if this rapid growth continues (it can't) the number of living Nepal's will be 368 million (roughly) equal to the current combined population of the north American continent. Mexico the united states, and Canada)

Table 7: Cohesion in seventh paragraph

S.N	Cohesion	Given / Used word	Symbolic meaning
1-4	Conjunction	As	
	Adverbial	Just	
	Determiner	one	
	Demonstrative	this	
	Comparative	less	
	Comparative	than	
	Time adverbial	half a century	
	Demonstrative	that	
	Conjunction	and	
	preposition	with	
	Adjective	annual	
	Personal noun	Nepali women	
	Demonstrative	there	
5-8	Prepositional	by	
	Time period	this year	
	Conjunction	so that	
	Adverbial	yet	
	Preposition	over	
	Conjunction	if	
	Personal	Nepal's population	
	Adverbial	Just	
	Conjunction	If	
	Demonstrative	this	

There are two 'as' and 'and' used as conjunction in the same way three deferent

demonstrative ref. are 'this', 'that' and 'these' used, two comparative reference are 'less'

and 'than'. 'Just' is used as adverbial reference 'one' is used for determiner, time

adverbial reference is half a century prepositional and adjective cohesive words are

serially 'with' and 'annual' and Nepal woman is used as personal pronoun there.

In the same way from the fifth sentence to cast these are 'by' and 'over' used as prepositional reference 'adverbial reference are 'yet' and 'just' conjunction reference are 'so' that' and 'if' time period shows 'This year', demonstrative pronoun is 'this' and Nepal's population is known as prep noun.

Thus the combination of sentences in this essay has tried to show the risk of Nepal's population if it continues without checking carefully, otherwise after 28 years the total population increases the total sum of 46 million.

Paragraph-Eight

In this paragraph of the essay has four sentences and they have been included meaningfully to complete the massage of this paragraph to the reader.

1. On first sight it may appear that when it comes to something as valuable as a human being, the more we have the better off we are.
2. In some ways, this is true.
3. All things being equal more people are likely to generate more invention more technological breakthroughs and more copulate profits.
4. But, taken as a whole, most ecologists are convinced that the world is already overpopulated.

It is the detailed of those cohesive words which are used in the four sentence of the paragraph. this table are used in the four sentences of the paragraph. This table has declared the character features of each cohesive words.

Table 8: Cohesion is eighth paragraph

S.N	Cohesion	Related words	Symbolic meaning
1-4	Preposition	on	
	Adjective	first	
	Conjunction	that	
	Interrogative pronoun	when	
	Personal	it	
	Adverbial	better	
	Preposition	off	
	Demonstrative	this	
	Adverbial ref	all	
	Comparative sub modifier	more	
	Adverbial	likely	
	Conjunction	and	
	Comparative sub modifier	more	
	Conjunction	but	
	Conjunction	as	
	Common	as a whole	
	demonstrative	that	
	adverbial	already	

The first sentence has seven cohesive words 'on' and 'off' prepositional ref. 'first' as

adjective ref. 'that' is a conjunctive 'when' is interrogative ref. 'it' as personal ref. and

'better' as adverbial ref. in the second sentence this is used as demonstrative ref. in the

fourth 'all' and 'likely' as adverbial ref. 'more' is a comparative ref and as the

connective ref. in the last 'but' and 'as' conjunctive as a 'whole' is a common noun 'that' as demonstrative and already is on adverbial ref. in this way all in the sentences used this paragraph have complete meanings .

Paragraph- Nine

This paragraph has included nine defiant sentenced in order to study its cohesive features separately

1. Human population can't continue to grow indefinitely for the simple reason that the world itself in finite.

2. To show this let's consider Nepal agues.

3. Can this county comfortably support -44 million people let alone 368 million.

4. More people will need even more food than they need now and there fore the process deforestation will contrive so that eventually wild trees will vanish.

5. As the population goes up so does pollution of rives lakes air drinking water and soil.

6. with more people both town and county become more crowed.

7. The quality of life and the value we place on human life continue to erode.

8. When the population is sable increases in such things as food production number of improved quality of life but such increases often fail to keep pace with population growth.

9. Higher population density is also likely to exacerbate trimetric conflicts and warfare.

All deified cohesive words are studied to it in the table and verified it with its own characteristics.

Table 9: Cohesion in Ninth Paragraph

S.N	Cohesion	Related words	Symbolic meaning
1-4	Common noun	human population	
	Preposition	for	
	Conjunction	that	
	Reflective pronoun	itself	
	Demonstrative	again	
	Adverbial	alone	
	Comparative	more	
	Conjunction	evermore	
	Comparative	than	
	Conjunction	therefore	
	Conjunction	so that	
5-9	Conjunction	as	
	Comparative	so	
	Preposition	with	
	Comparative	both	
	Comparative	more	
	interrogative	when	
	Determiner	such	
	Conjunction	or	

	Adverbial	often	
	Conjunction	but	
	Prepositional	with	
	Comparative	higher	
	Adverbial	also	

As the cohesive words are green in the table the first sentence in this paragraph has the following cohesive words Human population as common noun 'for' as preposition word 'that' as conjunction and 'itself' as a reflective pro. ref. in second sentence 'this' is used as demonstrative ref. and 'again' is an adverbial ref. in the third sentence 'alone' is an adverbial in the fourth sentence, 'more' and 'than' are the comparative reference and 'evenmore' 'therefore' and 'so that' are the conjunction. In the next sentence 'as' is used as conjunction and 'so' as comparative. In this way in the next sixth sentence 'with' is used as preposition al 'both' as conjunction and 'more' as comparative ref. In the eight sentence, there and two conjunction ref. 'or' and 'but'. Only one 'with' preposition ref. 'such' as determiner and 'often', is used as adverbial ref. and the last ninth sentence higher is used as comparative ref. and 'also' is used as adverbial reference.

Thus this paragraph has complete with these cohesive words and these cohesive words have played much more important to make the paragraph meaningful and logical point of view.

Paragraph-Ten

This paragraph has included four sentence and they are studied have for their cohesive words.

1. The American government, to take another example, estimates that some 60,000 American die each year from respiratory diseases which are turn caused by human made pollution.

2. Fourteen Americans die each day from asthma aggravated by air pollution three times the incidence of just twenty year ago.

3. Needless to say, the situation in cities like Los Angeles, Kathamandu, Mexico and shanghai is even worse.

4. In all these cases, the situation could be considerably improved by controlling pollution and population.

All the cohesive words and taken from the sentences and kept them wisely with their cohesive features. This table has cleared it separately and than it is detailed.

Table 10: Cohesive in tenth paragraph

S.N	Cohesion	Related words	Symbolic meaning
1-4	Adjective	another	
	demonstrative	that	
	determiner	some	
	distributive	each	
	common noun	year	
	preposition	from	
	interrogative	which	
	adverbial	in turn	
	preposition/conjunction	by	
	time period	three times	

	adverbial	just	
	time adverbial	twenty years ago	
	adjective	need less	
	common noun	even	
	Demonstrative	these	cases of pollution and population
	demonstrative	all	
	Preposition	by	
	Conjunction	and	

In the first sentence cohesive world 'another' as adjective 'that' as demonstrative 'some' as determiner 'each' as distributive, 'year' is time reference 'from' and 'by' are as prepositional ref, 'which' as interrogative and 'in turn' is used as adverbial in this way, 'three times' as time period ref. just and 'twenty year ago' as time adverbial ref. 'Needless' as adjective and 'even' as common noun. In the last, 'These' and 'all' are demonstrative ref., by as preposition ref. and 'and' is conjunction.

Paragraph-Eleven

In this paragraph, there are four sentence and they all are written separately below which has made its elf easy to verify the cohesive words.

1. More over the world, as we have seen face such frightening problems as desertification, depletion of nonrenewable resources leg. petrol natural gas helium, acid rain loss of wild species ozone layer depletion and the green house effect.

2. A united nations 1993 document puts it this way: population size and rates of growth are key elements in environmental change.

3. At any level of development, increased populations increase energy use, resource consumption and environmental stress.

4. So, the more people the world has, the more severe these problems are likely to become.

The cohesive words are studied carefully from the sentence and abased than racially in the table below.

Table 11: Cohesion in Eleventh Paragraph

S.N	Cohesion	Related words	Symbolic meaning
1-4	Adverbial	moreover	
	conjunction	as	
	determiner	such	
	conjunction	and	
	personal pronoun	it	
	demonstrative	this	
	Conjunction	and	
	preposition	at	
	indefinite pronoun	any	
	comparative	more	
	determiner	the	
	demonstrative	these	
	conjunction	so	

	adverbial	likely	
	conjunction	and	
	personal pronoun	it	

In the first sentence the cohesive words are 'moreover' as adverbial ref 'such' as determiner 'as' and 'and' 'are' the conjunction ref. In the second sentence 'it' is used as personal pro. ref. 'this' as demonstrative pro. and 'any' conjunction in the sentence 'at' as preposition and 'any' as indefinite pro. ref. in the last sentence 'more' is used as comparative ref. 'the' as determines there as demonstrative 'so' and 'and' are the conjunction 'likely' as adverbial ref. and 'it' is used as personal pronoun.

In this point of view the use of cohesive words in this paragraph is so appropriate and these mentioned words are classified with their features.

Paragraph – Twelve

This paragraph has been included more sentences they are sported to study sentence by sentence for its cohesive purpose.

1. Thus large and rapidly growing populations make decisive contributors to all environmental problems.
2. In the long run efforts to save the biosphere depend in par on our species ability to roll back its numbers
3. Yet there is a bright side to this other wise grim tale. History and common sense tell us that we can control population growth.
4. The German and population for example deity world trends are actually declining.

5. In such over population countries like china Thailand and Egypt the rate of population growth has showed down remarkably thanks to concerted government action.

6. How do these countries mange to reverse or slow down population growth?

7. Many factors account for these remarkable declines modernizing literacy media campaigns readily available family planning measures and contraceptives equal economic educational and legal opportunity for woman.

8. Human beings thus know how to control their members.

9. What they have been lacking so for is the resolve to make use of this knowledge.

The table has detailed all those cohesive words used in the above rive sentences and they are separately indemnified for their own cohesive features.

Table 12: Cohesive in Twelfth paragraph

S.N	Cohesion	Related words	Symbolic meaning
1-4	Common noun ref	Thus	
	Adjective	Large	
	Adverbial	rapidly	
	Time adverbial	in the long	period of time
	Preposition	back	
	Personal	its	
	Adverbial	yet	
	Demonstrative	there	
	Demonstrative	this	

	Adverbial	other wise	
	Conjunction conjunctive	that	
	Conjunction	and	
	Adverbial	for	
	Determiner	the	
	determiner	such	
	Interrogative	how	
	Demonstrative	these	
	Determiner	many	effective features for woman
	Demonstrative	these	
	Preposition	for	
	Adverbial	thus	
	Interrogative pro ref	how	
	Personal pronoun ref	their	
	Interrogative pro ref	what	
	Adverbial ref	so for	
	Demonstrative ref	this	knowledge of nature
	Personal pro ref	they	human bong

In this first sentence there are three cohesive words 'thus' as common noun 'large' as adjective ref. and 'rapidly' as adverbial ref. in the second sentence 'in the long' is used as time adverbial ref. 'back' as prepositional ref. and 'its' as a personal pro. ref. in the third sentence 'yet' is used as adverbial ref. 'there' and 'this' as demonstrative ref. 'otherwise' as adverbial ref. and 'that' is used as conjunction in the fourth sentence

'and' as a conjunction and for as adverbial in the firth 'the' is used as determines and such is also the same.

In the next sentence 'how' is an interrogative ref. and is demonstrative the seventh 'many' is the determines 'these' is demonstrative and 'for' as the prepositional ref. in the eight sentence 'thus' is used as adverbial ref. 'how' is an integrative pro. ref. and 'there' is a personal pro ref. and the last sentence there have four cohesive words, 'what' is used as interrogative pro. ref. 'so for' is an adverbial ref. 'This' is a demonstrative ref. and 'they' is used as personal pro ref. This means to say that the cohesive words have made the sentence beautiful and clear. And these sentences have banded the paragraph with meaning full sense.

Paragraph-Thirteen

This paragraph has included six sentences and they are described below for their cohesive reason.

1. Let us move to another long –term problem the state of the word's trees.
2. Owing to rapid population growth poverty and other factors many third world people are forced to move into harvest clear, burn or cultivate tropical forests.
3. Thus population pressures along with new technologies and the affluent life style of people exacerbate the problem of deforestation.
4. A county like Nepal has just so much arable land .
5. So as the population grows more and more people are forced to convert forests in to farmlands.
6. They must also cut down more and more trees for fuel.

The table below has put into the order to identify them easily while they searching about it.

Table 13: Cohesive in thirteenth paragraph

S.N	Cohesion	Related words	Symbolic meaning
1-4	Adjective	another	
	Common noun	long-term	
	Determiner	other	
	Determiner	many	
	Conjunction	or	
	Prepositional	along	
	Conjunction	and	
	Indefinite pronoun	some	
	Adverbial	just	
	noun	so much more	
	Adverbial	more and more	
	Comparative	so	
	Conjunction	as	
	Adverbial	also	
	Preposition	for	

There are two cohesive words are mentioned 'another' as adjective and 'long-term' as common noun in the first sentence in the second sentence there are three 'other' as determiners 'many' also determiner and 'or' as conjunction, in this way in the their sentence there are three cohesive words 'along' as preposition 'and' as conjunction and

'some' as indefinite pronoun there are two cohesive words in fourth paragraph 'just' is used as adverbial reference and 'so much' as noun reference in the fifth paragraph 'more and more' is used as adverbial words 'so' comparative and 'as' conjunction reference and the last sentence of this paragraph has two cohesive words 'also' used as adverbial reference and 'for' is used as prepositional reticence.

In this way by using these cohesive words have made the paragraph capable to carry the logical view on the world wide crisis to nature by human activities.

Paragraph- Fourteen

This paragraph has included six settees and they are thudded for cohesive words used in these sentences.

1. The people of rich countries are also quality.

2. To satisfy westerner's insatiable demands for hamburgers more and more tropical rainforests in countries like Brazil are cleared and converted to pastures.

3. Some rich people also buy mahogany furniture news papers and other paper products in vast quantities.

4. It is frightening to recall for instance how many trees must be felled to just produce the Sunday edition of the New yuck Times

5. Many forests are also damaged by pollution tourism construction of houses and factories and similar practices.

6. More over the productivity and general health of the word's forests is threatened by such things as the green house effect alone layer depletion airborne pollution and acid rain.

This table has shown the drifted cohesive Wolds used in the fourteen paragraph and they are verified with their features.

Table 14: Cohesion in fourteenth paragraph

S.N	Cohesion	Related words	Symbolic meaning
1-4	Determiner	the	people of rich countries
	Common noun	westerner's	people from west countries
	Conjunction	and	
	adverbial	also	
	Determiner	other	
	Adverbial	for instance	
	Interrogative	how	
	Preposition	just	
	Proper noun	Sunday	
	adverbial	also	
	preposition	by	
	conjunction	and	
	adjective	similar	
	adverbial	more over	
	Preposition	by	
	Conjunction	as	
	determiner	such	

According to the fourteen paragraph 'the' is used as determiner 'westerner's' is the common noun fervency, 'also' is an adverbial references, 'and' is the conjunction 'other' in the sentence is used as determiner 'for instance' is an adverbial reference 'how' is an interrogations 'just' is an adverbial ref. 'Sunday' personal ref. 'also' an adverbial ref. 'by' prepositional ref. 'and' is a conjunction 'similar' is a adjective 'moreover' are is a adverbial 'by' is used as preposition 'again' is a common and 'such' is used as determines.

These words are used and verified to the side of cohesion and cohesive words can play an important rule to stretch the meaning of a sentence.

Paragraph-Fifteen

In this paragraph only three sentences have included to conclude formal matter of the essay the words have played vital role.

1. The deforestation crisis in not new.
2. Many earlier civilizations including those of the middle east now Mexico and Easter is land precipitated their own decline through over population and deforestation.
3. the difference is that we are destroying our destroying our forest faster and on a larger scale then over before

There are many cohesive words are found in those sentence and they are arranged in the table below with their formal features in the spoken and written point of view there cohesive words are mentioned below.

Table 15: Cohesive in fifteenth paragraph

S.N	Cohesion	Related words	Symbolic meaning
1-4	determiner	the	
	Adjective	new	
	determiner	many	
	Common noun	the middle east	new Mexico
	Demonstrative	their	
	Conjunction	though	
	Conjunction	and	
	Conjunction	and	
	Conjunction	that	
	Adverbial	a larger scale	decline of forest
	Conjunction	than	
	Adverbial	ever	
	Preposition	before	

In the first sentence 'the' is used as determiner and 'new' is an adjective. In the second sentence 'many' is known as determines in 'the middle east' is a common noun 'there' is used as demonstrative ref. 'through' is a preposition ref. the last 'and' is a conjunction three in the sentence in the third sentence 'that' is used for conjunction a later scale is an adverbial ref. 'than' is the as conjunction 'ever' is used for adverbial ref. and 'before' is a preposition word there cohesive words the paragraph more meaningful and reasonable there in the fifteenth paragraph .

Paragraph- Sixteen

This paragraph is divided in to different four sentences in which many cohesive words are included and they all are studied for discourse analysis of cohesion.

1. Earlier in this century forests covered around 40% of the Earth's total land area.

2. By this century's end that figure will stand about 25%

3. The destruction of forests in turn contributes to such things as the greenhouse effect irreversible lose of many thousands of species of plants and animals land slides soil erosion salutation of slivers and dams droughts and wearer extreme.

4. For instance as the trees of Nepal are cut down its top is gradually being lost and its rain are likelier to cause devastating floods in India and Bangladesh.

In this paragraph, the four sentence are included in the paragraph and its main purpose is to study and tabulate the cohesive ward to find its stretcher into the sentence.

Table 16: Cohesion in Sixteenth Paragraph

S.N	Cohesion	Related words	Symbolic meaning
1-4	Adverbial	earlier	
	Time period	in this century	
	Preposition	around	
	Time Period	by this century's end	21 century
	Demonstrative	that	
	Preposition	about	

	Adverbial	in turn	
	Determiner	such	
	Personal	its	
	Conjunction	as	
	Adverbial	gradually	
	Conjunction	and	

There are three cohesive words are described the first one is 'earlier' as adverbial ref., 'in this century' is known as time period, and 'around' is used as preposition ref. in the first sentence in this way 'by the century's end' as time period 'that' as demonetarize' reference and 'about' as preposition ref. an adverbial ref. 'such' is determiner 'its' is a personal pronoun 'as' is a conjunction and 'as' is repeated there in the fourth sentence, 'gradually' is an adverbial ref. and 'and' is conjunction. These all uses of cohesive words make the sentences meaningful.

Paragraph-Seventeen

This is the seventeenth paragraph of the related essay which is divided different jobs to plants the needy subject to all thrush the essay.

1. The eventual consequences of massive and ongoing deforestation are uncertain but they are likely to damage the quality of life on Earth, reduce the number of life forms that share the planet with us and human the ability of the biosphere to sustain life.
2. Humanity can continue to fell trees, cross its fingers and hope for the best.
3. On it can take hold of its future and reverse the process of deforestation.

Cohesive words are written in the table and studied with its different characteristics with deferent point of view.

Table 17: Cohesion in seventeenth paragraph

S.N	Cohesion	Related words	Symbolic meaning
1-3	Determiner	the	
	Adverbial	and	
	Conjunction	but	
	Personal pronoun	they	
	Noun phrase	on earth	
	Preposition	with	
	Conjunction	and	
	Preposition	for	
	Superlative determiner	the best	
	Conjunction	or	
	Personal Pronoun	its	

All together there are three sentences in which, the different cohesive words are used appropriable, 'the' is determiner 'eventually' is adverbial, conjunction references are 'and' 'but' and 'or'. 'The' is a determiner, its is personal pronoun superlative determiner 'they' is personal pronoun reference, 'on earth' is a place ref. in which we have composed the roles to make sentences 'the best' is superlative ref.

In this way above mentioned words are itself so value able because the varieties of words add the simple introduction to words then sentences, then paragraph in which a reason able and result oriented so that it keeps more valuable to all.

Paragraph-Eighteen

In this paragraph, there are seven sentence included. The essayist has composed this paragraph as a part of the essay to add more logical involvement in this essay.

1. We can save our forests by controlling our numbers and our appetites.

2. The list of remedies included easing population pressure on tropical forests through effective investments in family planning efforts and through education of the third word's people.

3. Moves towards participatory democracies and a greater measure of economic sufficiency may also help to stabilize the number of the world's people and trees.

4. Another remedy world involve greater efficiency is the use of wood products conformed perhaps through a special tax and recycling.

5. Another measure would provide financial incentives for preserving forests and for sustainable forestry.

6. Still another promising-but in the short term costly step would involve massive tree plantings of abandoned deforested lands and of unused lands elsewhere (e.g. in cities, and along riverbanks, highways and rail road tracks)

7. Reforestation will in turn have the added benefits of conserving biodiversity, pristine wilderness, top soil, and horns for indigenous people and of minimizing desertification, flooding and regional declines in rainfall.

The table has introduced and analyzed the cohesive words used in the paragraph-eighteen. It has been shown in the different characteristic.

Table 18: Cohesion in Eighteenth paragraph

S.N	Cohesion	Related words	Symbolic meaning
	personal	we	all human beings
	Preposition	by	
	Preposition	through	
	Adjective	effective	
	Conjunction	and	
	Preposition	on	
	Preposition	toward	
	Adjective	greater	
	Common noun	also	
	Common noun	world's people	
	Adjective	another	
	Adverbial	perhaps	
	Preposition	for	
	Conjunction	and	
	Adjective	sustainable	
	Adverbial	still	
	Conjunction	but	
	Determiner	the	
	Adjective	short term	
	Adverbial	else where	
	Preposition	along	
	Adverbial	in turn	

	Common noun	indigenous's	people living from year
	Preposition	in	
	Preposition	for	

The cohesive words are 'we' and 'by' given in the fist sentence and 'by' is preposition. In the second sentence 'through' is a reposition ref., 'effective' is used as an adjective reference, 'and' is used for conjunction reference and 'on' is the prepositional reference 'towards' is a prepositional reference 'greater' is the adjective reference and 'also' an adverbial reference in the third sentence 'world's people' is used as common noun In the fourth sentence 'another' is an adjective reference 'perhaps' as a adverbial reference. 'For' is a preposition ref. used in the fifth paragraph so the word 'and' is a conjunction where the word 'sustainable' is an adjective. In the sixth sentence there are six cohesive words are used 'still' is an adverbial ref. 'but' is a conjunction 'the' is known as determiner 'short term' is an adjective 'elsewhere' is an adverbial ref. and 'along' is a preposition ref. In the seventh sentence of this essay has four cohesive words and they are also described with their own features 'in turn' is an adverbial ref. 'indigenous' is a common noun ref. 'in' is a preposition ref. and 'for' is also know the same preposition ref. By using these cohesive words' features the paragraph has evaluated highly and the combination of there sentence makes the paragraph more reasonable and the then too has considered of those words so wisely in this essay.

Paragraph-Nineteen

In this paragraph there are different five sentences are used to make the essay perfect in which many cohesive.

1. Sometimes the steps that can save the word's forests are surprisingly painless.

2. Appropriate technology provider one way.

3. In some Nepali villages for example more efficient cooking stoves which give off the same heat while using fewer words have been introduced.

4. A Nepali woman remarked that this smokeless Chula stove has really reduced the smoker in my kitchen and uses less firewood.

5. Besides saving trees such Stover allow villages to devote less time to gathering firewood and more to education and other rewarding activates.

In this table the types of cohesive words are studied carefully and identified them with their own characteristics which mare the sentences more waited there in the essay.

Table 19: Cohesion in nineteenth paragraph

S.N	Cohesion	Related words	Symbolic meaning
1-3	Adverbial	sometimes	
	Demonstrative	that	A Nepali woman
	Adjective	one way	
	Preposition	in	
	Determiner	some	
	Comparative ref	more	
	Adverbial	for example	Nepali villages
	Interrogative	which	
	Prepositional	off	
	Adjective	same	
	Interrogative	while	
	Comparative	less	

	Conjunction	that	
	Demonstrative	this	smokeless Chula
	Common noun	chulo	stove
	Personal pronoun	my	the writer
	Comparative	less	
	Prepositional	beside	
	Determiner	such	
	Time	less time	
	Time related	more time	
	Conjunction	and	
	Common noun	other	

Different cohesive words are used there to make first to third sentences there meaningful and reasonable. In the first to third sentences there are two prepositional ref. used 'while' and 'which' are the interrogative ref. 'more' and 'less' are the comparative ref. 'One way' and 'same' are the adjective ref. 'sometimes' and 'for example' are the adverbial ref. 'that' is used as demonstrative ref. 'some' is know as the determiner.

In this ways fourth and fifth sentences have some cohesive words above there in the table there are two conduction ref. just like 'that' and 'and' the word 'chulo' is a common noun 'my' is a personal pronoun ref. comparative ref. is used as 'less' 'beside' is proposition ref. 'such' is known as determiner time related ref. are 'less time' and 'more time' and 'other' is known as common noun. In such way those cohesive words have added more conceptual wide meaning of this paragraph.

Paragraph-Twenty

This is an introduction and analysis of these cohesive words used in the twentieth paragraph which is divided in to different six senders below and those words are analyzed in the table below.

1. Many similar approaches   are done.

2. We can of we want have fewer people and more trees.

3. We know how it can be done.

4. We know how it can be done.

5. We know that it ought to be done- for our the sake of our children and for sake of other creatures who shave this planet with us.

6. What we are still leaking is the wisdom courage and compassion to convert this knowledge in to reality.

In this table the types of cohesive words are identified separately and have shown clearly in this table with those words which make the sentences interesting and those sentences make paragraph meaningful.

Table 20: Cohesion in twentieth Paragraph

S.N	Cohesion	Related words	Symbolic meaning
1-6	Determiner	many	
	Adjective	similar	
	Conjunction	if	
	Conjunction	that	about more people, few trees

	Demonstrative	This	the issues
	Adverbial	for our sake	
	Personal pronoun	our	
	Interrogative	who	
	Proposition	other	
	Preposition	with	
	Interrogative pronoun	what	
	Adverbial ref	still	
	Demonstrative	this	
	Prepositional	into	

In the first sentence 'many' is used as determiner, and 'similar' is known as adjective ref. In the second sentence personal pronoun 'we' is repeated twice 'if' is a conjunction, 'this' is used as demonstrative ref. and 'that' is played the role of conjunction there in the third sentence 'how' is interrogative ref. in fourth paragraph, in the fifth sentences, 'for our sake' is an adverbial ref., 'with' is a preposition pronoun in the fifth sentence, 'what' is an interrogative ref., 'still' is used as adverbial ref., 'this' is demonstrative ref. and 'into' is a proposition ref.

The cohesions in the sentence and sentence into the paragraph of this essay which carry a logical weight that give the meaning more than a sentence says. so that to study the cohesion and cohere is important to all linguistics.

4.3 Conclusion

The mentioned essay 'two long term problems; too may people: Too few trees by 'Moti Nissani' has one hundred and twenty sentence and has the twenty paragraph in

this essay. 'These sentence have been verified with paragraph-wise using of table for each paragraph in which cohesive words and detailed with their feature these cohesive words have played vital role to connect the sentence to the first massage of the essay. There have mentioned lots of cohesions just line adverbial conjunction, prepositional, demonstrative, interrogative time period adjective, determiner, personal pronoun, reflective pronoun, comparative, common noun ref etc.

In such way, using of these cohesive words are used in the essay-finally, it is seem that the composing of the famous essay "Two long term problems; Too many people too few trees" by Moti Nissani is suitable and fully appropriate in the essay. And in additional, the matter about the Nepal's context it is more appropriate and concerning waters for the people who have been living in the Nepal. And the government of Nepal have to be more conscious and also those people who are living in Nepal, are living in more risk for the matter of over population on and deforestation. It is the massage for all human beings to save the environment and save the world.

4.4 Introduction and analysis of coherence used in the sentence of the essay "Two long term problems; Too many people Too few trees."

As the essay has been divided into twenty paragraph and one hundred and twenty sentence to analyze and introduce the cohesion in the same way this essay 'two long term problem: too many people too few trees' has also divided into twenty paragraph and hundred and twenty sentences to identify and analyze the coherence of the given essay.

Paragraph-One

4.4.1 This first paragraph has five sentences they are especially given below to identify and analyze the coherence roles among the sentences.

1. In 1992, over fifteen hundred of the world's scientists in culling more than half of all living Nobel prize winner signed The world scientists warning to humanity.

2. This document reflects growing concerns about the stage of biosphere Human beings and the natural world are a collision course.

3. Human activities inflict hares and often irreversible damage on environment and on critical recourses.

4. Lf not checked many of our current practices put at serious risk the future that we wish for human society and the plant and animal kingdoms and may so alter the living world that it will be unable to sustain life in the manner that we know.

5. Fundamental changes are urgent at we are to avoid the collision our present course will bring about.

Table 21: Coherence in First paragraph

S.N.	Coherence
1-2	Clarification
2-3	Cause effect
3-4	sequential
4-5	Cause-effect

The first and second sentences have clarification coherence, second and third is effect-result coherence third and fourth are sequential coherence and the last also known as effect-result where me.

In this way the second sentence has cleared the matter of 1st sentence in the same way it is clarification coherence, the third sentence is the result of the second sentence, so it is cause-effect coherence the fourth events is in sequence so it is sequential coherence and the last sentence is also the same it is cause-effect coherence, so.

Paragraph-Two

The second paragraph has in total three sentences and they are especially given below to identify and analyze the coherence roles among the sentences.

1. In an unusual joint statement of the same year the royal society of London and the us. National academy of science concurred the future of our planet is in the balance.
2. Sustainable development can be achieved but only if irreversible degradation of the environment can be halted in time.
3. The next 30 years may be crucial.

Table 22: Coherence in second paragraph

S.N.	Coherence
1-2	Sequential
2-3	Indirect

The table has detailed the coherence of the sentence first and second sentence are in the sequence, so it is identified the sequential coherence and the third, it is described of possibility, so it is on indirect coherence.

Paragraph-Three

This paragraph has nine sentence and they are listed her for identifying and analyzing of coherences among the sentences.

1. The facts speak for themselves.

2. The chances of contracting cancer, emphysema or asthma are for higher now than they were a century ago.

3. Human sperm counts in many localities are worrisomely low.

4. Many of us suffer from premature hearing loss traceable to excessive noise.

5. We work longer hours than our parent did and spend more time getting to and from work.

6. We are troubled by the effects f such things as head and dioxin on our children's intelligence and heath.

7. We think twice now a days before plunging on hot summer days, into possibly contaminated rivers lakes or seas.

8. We can no longer experience true wilderness.

9. We are uneasy about poisons in our food and drinks; in our homes and workplaces, in our air, water, and soil; in our brains and livers; in our pets, domestic animals, lawns and farms.

Table 23: Coherence in third paragraph

S.N.	Coherence
1-2	Clarification
2-3	Clarification
3-4	Clarification
4-5	Clarification
5-6	Indirect
6-7	Sequential
7-8	Sequential
8-9	Introductory

According to the sentence one and two has written about the facts that suffered environment causes such risky diseases, so the relationship between the two paragraph has seen clear relation in the same way, third four and fifth sentences, fifth and sixth sentence have indirect relation, sixth, seventh and eight sentences have sequential relationship and the last two sentence have introductory relationship in this way relationship among the sentence in third paragraph has seem so clear and appropriate for the essay.

Paragraph-Four

This paragraph has thirteen sentences and they are kept in sequence to identify and analyze the coherence roles among the given sentence.

1. We are surrounded by signs of global environmental decline.

2. Worldwide some species of frogs, salamanders and penguins are declining.

3. We have apparently learned nothing from the extinctions of the dodo and the great auk of the passenger pigeon and the moa.

4. The continued existence in the wild of the most human like minds we know of those of apes and cetaceans is in doubt.

5. Entire fisheries are collapsing.

6. Every hour we add 10,000 people t our members, acting as if there are no such things as carrying capacity and future generations as if we have learned nothing from the environmental failures of earlier civilizations.

7. We squander numberless resources unsustainably acting as if each and every recourse is replaceable.

8. We continue to produce plutonium and other long-lived poisons, even though we know that nothing on earth can be safely sequestered for millennia.

9. We continue to litter space.

10. When we fight pollution, we typically try to partially clean things up after the fact instead of opting for the cheaper and healthier path of prevention.

11. More harmful ultraviolet rays from the sun reach us how a days raising the specter of skin cancer and cataract epidemics.

12. Soil erosion, desertification, and deforestation are proceeding apace.

13. We are seeing already the first signs of human-indices climate changes doing little more than crossing our fingers and praying that dive predictions of sizzling temperatures, floods tropical diseases and mass migrations will prove wrong.

Table 24: Coherence in fourth paragraph

S.N.	Coherence
1-2	Cause-effect
2-3	Sequential
3-4	Sequential
4-5	Cause-effect
5-6	Introductory
6-7	Indirect
7-8	Sequential
8-9	Sequential
9-10	Sequential
10-11	Cause-effect
11-12	Clarification
12-13	Clarification

The table has characterized coherence roles in the sentence, the first sentence has affected to the second sentence, second, third and fourth are in sequence, fourth and fifth have effect and result relation fifth and sixth have introductory relation, sixth and seventh have indirect relation seventh, eight and ninth have sequential relation, ninth and tenth have sequential, tenth and eleven have cause-effect based relation and eleventh to thirteenth have clarification relation.

Paragraph-Five

This paragraph has only four sentence and they are studied for their coherence. So they are listed down there for their relationship among them.

1. It takes a great deal to study and reflection to understand the nature, causes, consequences and cures of just one of these environmental ills.

2. No comprehensive coverage of any single ecological issue can be undertaken in this brief, introductory essay.

3. In stead I shall only limit myself to a few cursory remarks about two major interrelated challenges, overpopulation and deforestation.

4. In doing so, I hope to alert you to the seriousness of both and to the need for collective and personal actions.

Table 25: Coherence in fifth paragraph

S.N.	Coherence
1-2	Clarification
2-3	Clarification
3-4	Introductory

According to the first, second and third sentences have clear relationship among them so they are in clarification relation and the last third and four have tried to explain about the author so it is an introductory relation.

Paragraph-Six

This paragraph has eight sentences and they are listed to identify and analyze the coherence roles among the sentences.

1. Human populations have always been in flux for the simple reason that everyday some people die while others are born.

2. Throughout-most of human existence, the number of births was slightly higher than the number of death, consequently, word populations grew at a very slow rate.

3. A few hundred years ago, however, the situation began to change especially in the industrialized world.

4. With advance in nutrition sanitation and health people live longer and more of them reach reproductive age.

5. Thus for the first time in our species existent the balance the number of death and births has been significantly disturbed.

6. Consequently during the last three centuries or so, the I bal human population has been rapidly going up.

7. Every year in fact the world's population grown by more than 80 million people.

8. It is for instance, so being to re call that for every eleven human being alive now only one was alive in the year 1950.

Table 26: Coherence in sixth paragraph

S.N.	Coherence
1-2	Clarification
2-3	Sequential
3-4	Situational events
4-5	Clarification
5-6	Clarification
6-7	Clarification
7-8	Introductory

According to the first sentence has clearly related to the second sentence in this way second and third sentence have sequential relationship in the third to four situation causes the forth paragraph, forth, fifth and sixth have clearly seen relation and the last two sentence have introductory relation each other.

Paragraph-Seven

There are eight sentence included in this paragraph they are listed here to identify and analyzed coherence role to the sentence.

1. As just one concrete example of his expiation growth consider Nepal.
2. In 1951, Nepal's population was 9 million.
3. Less than half a century later that number rose to 23 million.
4. And with an annual growth rate of 2.5% and with the average Nepali woman giving birth to five children, there is no end in eight to this alarming growth.
5. By this year's end there will be roughly 575,000 more Nepal's alive than at its beginning.
6. By the end of 1997, yet another. 589,000 will be added, so that by the beginning of the third millennium, Nepal's population will be over 24,000,00.
7. If this trend continues unchecked, Nepal's population will double in just 28 years, reaching by the year 2026, a total of some 46 million.
8. In 140 years if this rapid growth continues (it can't) the number of living Nepal's will be 368 million (roughly) equal to the current combined population of the north American continent. Mexico the united states, and Canada)

Table 27: Coherence in seventh paragraph

S.N.	Coherence
1-2	Sequential
2-3	Sequential
3-4	Sequential
4-5	Introductory
5-6	Sequential
6-7	Clarification
7-8	Sequential

According to the first, second and third sentence are in sequence the events of these sentences on connected each-other, in this way, the fourth sentence has introduced the fifth sentence, so it is an introductory related sixth sentence have cleared the reason and situation of seven sentence and the last two sentence are in sequence.

Paragraph-Eight

This paragraph has four sentence included they are detailed here to introduce and analyze the sense roles of the sentences.

1. On first sight it may appear that when it comes to something as valuable as a human being, the more we have the better off we are.
2. In some ways, this is true.
3. All things being equal more people are likely to generate more invention more technological breakthroughs and more copulate profits.
4. But, taken as a whole, most ecologists are convinced that the world is already overpopulated.

Table 28: Coherence in Eighth paragraph

S.N.	Coherence
1-2	Indirect
2-3	Event-situation based
3-4	Interchangeable

According to the first and second factices have not connected clearly, second sentence's that have created situation and the last sentence have opposite sence to each other "Though it has perfect combination among the sentence.

Paragraph-Nine

This paragraph has nine sentences these combinations of sentence are for introducing and analyzing coherence roles in the paragraph.

1. Human population can't continue to grow indefinitely for the simple reason that the world itself in finite.

2. To show this let's consider Nepal agues.

3. Can this county comfortably support -44 million people let alone 368 million.

4. More people will need even more food than they need now and there fore the process deforestation will contrive so that eventually wild trees will vanish.

5. As the population goes up so does pollution of rives lakes air drinking water and soil.

6. With more people both town and county become more crowed.

7. The quality of life and the value we place on human life continue to erode.

8. When the population is sable increases in such things as food production number of improved quality of life but such increases often fail to keep pace with population growth.

9. Higher population density is also likely to exacerbate trimetric conflicts and warfare.

Table 29: Coherence in ninth paragraph

S.N.	Coherence
1-2	indirect
2-3	interrogative
3-4	event-situational
4-5	in sequence
5-6	introductory
6-7	in sequence
7-8	indirect
8-9	cause-effect

According to the table the first and second sentence have no direct connection, second sentence has created interrogative mood in third sentence the third sentence have the situational connection with fourth paragraph, then fourth and fifth are sequential, fifth and sixth are introductory seventh and eighth is in indirect and the last two sentence are in effect and result situation. In such way, coherence also play vital roles to write or written activities.

Paragraph-Ten

This paragraph is only four sentence and they are introduced and analyzed the words coherence in the sentences.

1. The American government, to take another example, estimates that some 60,000 American die each year from respiratory diseases which are turn caused by human made pollution.

2. Fourteen Americans die each day from asthma aggravated by air pollution three times the incidence of just twenty year ago.

3. Needless to say, the situation in cities like Los Angeles, Kathamandu, Mexico and shanghai is even worse.

4. In all these cases, the situation could be considerably improved by controlling pollution and population.

Table 30: Coherence in tenth paragraph

S.N.	Coherence
1-2	Clarification
2-3	In sequence
3-4	Cause-effect

As the first sentence and the second sentence have the clear cause of pollution, the second and the third sentence have relationship in sequence and the last two sentences have he relation of cause and effect this way, coherence.

Skip the paragraph-11, 12, 13, 14, 15, 16, 17, 18

Paragraph-Nineteenth

This paragraph has five sentence and these are studied to introduce and analyze of coherence roles among the sentence.

1. Sometimes the steps that can save the word's forests are surprisingly painless.

2. Appropriate technology provider one way.

3. In some Nepali villages for example more efficient cooking stoves which give off the same heat while using fewer words have been introduced.

4. A Nepali woman remarked that this smokeless Chula stove has really reduced the smoker in my kitchen and uses less firewood.

5. Besides saving trees such Stover allow villages to devote less time to gathering firewood and more to education and other rewarding activates.

Table 31: Coherence in Nineteenth paragraph

S.N.	Coherence
1-2	Indirect
2-3	Introductory
3-4	Clarification
4-5	In sequence

This table has show the indirect relation between first and second sentience, the second and third sentence have introductory coherence third and fourth sentences

have clear matter to keep relationship between them and the last two sentences have in sequence and these coherences have with its different flavor.

Paragraph-Twenty

This paragraph has six sentences combined each other with its logical connective and they are introduced and analyzed the coherence roles among the sentence related to the sixty paragraph.

1. Many similar approaches   are done.

2. We can of we want have fewer people and more trees.

3. We know how it can be done.

4. We know how it can be done.

5. We know that it ought to be done- for our the sake of our children and for sake of other creatures who shave this planet with us.

6. What we are still leaking is the wisdom courage and compassion to convert this knowledge in to reality.

Table 32: Coherence in twentieth paragraph

S.N.	Coherence
1-2	Indirect
2-3	in sequence
3-4	in sequence
4-5	clarification
5-6	question answer

This six sentence are studied its coherence role the first has not related the second directly, the second and third sentence are in sequence its means second sentence has insisted the hard and the same third sentence has insisted fourth sentence the fourth and the fifth in which the clear matter has been indicated in this way the last two sentences have question and answer coherence.

In this paragraph, these coherence have played to adjust the relationship among the sentences.

4.5 Conclusion

The essay 'Two long term problems: Too many people too few trees' has been written by Moti Nissani as famous scholar holding degrees in different field in this essay the essayist has used twenty paragraph and come hundred and twenty sentences as it is detailed coherence point of views the use of coherence seems so useful, read able, in sequences and reasonable the words used in some paragraph have helped the essay to be more weighted so this essay is easy to understand for the reached the tables in which the coherences have been identified to clear the relationship among the sentence in conclusion the whole essay is so useful and profitable for readers in the coherent point of view.

4.6 Findings

After doing the research study on 'Two long term problems; Too many people Too few trees' the most repeated cohesion and coherence words are described here below:

- To make the paragraph meaningful and logical, many cohesive words are used but 'Conjunction references' are mostly used, and then 'adverbial reference' are

also used many times in the sentences in the paragraphs in this way, preposition references are repeated many times, then 'determiner reference' interrogative reference, comparative noun, adjective reference are also mentioned have but these are less used.

- The 'coherence' words are also identified, in which the most repeated coherence are clarification, sequential, cause-effect etc. There are also some other coherence like 'indirect' clausal introductory, inter-changeable, in sequence, question-answer etc.

- These words have played vital roles to add value of the essay and make the essay more value able to world widely.

CHAPTER FIVE

SUMMARY, CONCLUSION AND IMPLICATION

5.1 Summary

This thesis is carried out to identify the use of cohesion and coherence in the essay; 'Two long term problems; Too many people too few trees', written by Moti Nisani. There have in total twenty paragraph and one hundred and twenty sentence in the essay.

This essay is fully concerned to the serious two matters overpopulation and deforestation. The author has warned the human beings about their activities against the nature. Human beings themselves, have to be responsible for all these result, so every one must be concern to the matter of natural sources and its importance.

In this research study, this essay 'Two long term problems; Too many people Too few trees' is taken for discourse analysis of cohesion and coherence the two major sectors of discourse so, this essay is fully appropriate to analyze cohesion and coherence topic. To complete this research study, library-based research methods have been used to collect and analyze the related sources. This research study, is based to analyze the two sites 'cohesion' and 'coherence' of the related essay so it can be said that the discourse analysis have completed of the essay to do discourse analysis on cohesion and coherence. Everything, in this essay, is used so simple way. Thus, it's completely researched this essay on the discourse point of view.

5.2 Conclusion

Cohesion and coherence are the methods of the discourse analysis. It has two types written and spoken. The essay two long term problems: too many people too few trees written by Moti Nissani is analyzed on the basis of discourse cohesion and coherence. This essay has divided different twenty paragraphs and hundred and twenty sentence so that his has made it to introduce and analyzed cohesion and coherence essay.

As the essay 'Two long term problem; Too many people Too few trees' is specially studied for the discourse analysis. In the cohesion point of view, there are many cohesive wards are used to make this essay sensible interesting and meaningful. These words preposition ref Introductory ref; preposition, indirect, personal adverbial interrogative, common noun demonstrative time adverbs similar and opposite etc are studied for the cohesion there of view in this way, coherence point of view, there are clarification, indirect, cause-effect, interrogative, introductory, sequential, inter changeable, question-answer, situational etc identified and analyzed as the coherence elements so the use of cohesion and coherence in this essay are played a vital role to join the paragraph each-other, and the sentence each-other in this research study, cohesion and coherence are the major elements in which this work in centered. Everything around the research study seems so well-doing jobs to the discourse analysis on cohesion and coherence for the essay "Two long term problems: too many people too few trees.

In conclusion this research study has totally focused on discourse analysis to the essay and the cohesion and coherence identification and analyzation related to the essay.

5.3 Usability and Recommendation of Research Study

5.3.1 Usability of Research Study

In discourse analysis, it is most necessary to study both linguistic structure and its reference o the related topic, in which cohesion and coherence add the actual linguistic value of studying and topic. The usability of this research study can be mentioned/detailed like this.

This research study it will help those researchers to research some more in the field of discourse analysis.

- It helps to construct language curriculum and books related to the field and also helps to grading and selection of curriculum.
- It helps to use of teaching material for the technical learning procedure.
- It also helps to select the teaching skills.
- It helps to add support in language teaching.
- And it helps to continuous use of language skill in teaching learning process.

5.3.2 Recommendation of Research Study

Language teaching is a teaching learning process o linguistic skills. Discourse is defined from different perspectives and approaches such as cultural theories, critical theories, pedagogical themes and so on discourse analysis support teaching learning process of linguistic skill in continuous way everyone can have the benefits from this research for their own field. Specially the other, curriculum experts, writers, student critics, head teacher, linguist poet etc all who can have enough benefits directly from this kinds of research study. Everyone should b conscious to the sector because this

kind of thesis is a burning issue for the student and becoming so popular in the sector of discourse analysis.

5.3.3 Some possible titles can be done in future on discourse analysis

In the field of discourse analysis the researchers should be appropriate to do the research study on the following topics:

- Discourse analysis on any story, biography, plays, essay.

- Discourse analysis on any novels.

- Discourse analysis on any dialogue.

- Discourse analysis on any auto biography.

- Discourse analysis on any daily.

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APPENDIX I

Author's Introduction

Here, it is described the Author's introduction, author's natures and conclusion of related topic.

(I) Introduction of "Moti Nissani"

Moti Nissani who has interdisciplinarian holding degrees in different fields. He is known as a geneticist, philosopher, Ecologist, language instructor, psychologist, politician etc. His writings have the different perspectives; "Conceptual conservatism; an understated variable in human affairs?" (1994); "The plight of the abscure innovator in science", (1995); "The green house effect: an interdisciplinary perspective", (1996); "The apprenticeship approach to writing instruction", (1996); "Brass-stacks ecology," (1997); Lives in the balance: The cold war and American politics, 1945-1991, (1992): The essay is one of the most concerning part of those critical problems which the human beings have to face in recent future, As the matter comes to the contest of Nepal, it is the most appropriate as the author has mentioned natural in balance, and its cause-effects to the Nepalese people.

(II) Moti Nissani's Attitudes toward Essay

Most of his writings have been based on public concerned matters. His works have been highlighted only those cases in which the matters are concerned for public awareness or warnings.

(III) Conclusion of the Essay

The essay, "Two long-term problems; Too many people, Too few trees", by a noted scholar Moti Nissani, is about two distinct yet inter-related, long-term problem. These two major problems, which are over population and deforestation, are likely to destroy all the lives on our planet unless timely actions are taken.

The essay starts with the world's scientists concern over the earth's water and soil, which are regarded to be the most important things for the existence of any living species, are becoming poisonous and many kinds of plants and animals have already disappeared.

Nissani opines the main reason for the degrading situation is over population. He cites the examples of Nepal, where the population has risen to 23 million from 9 million in less than 50 years. If the same trend continues unchecked, the population of Nepal will reach around 368 millions after 140 years.

In this essay, Moti Nissani encourages us to protect trees for the future generation. He has recommended few steps from where we can prevent chopping down of the trees and restore healthy atmosphere. We need wisdom, courage and compassion to control the problems to over population and deforestation, concluding the essay, Nissani stresses that we should have willingness and passion to reduce population and plant trees which will help us to live healthier and our future will also be bright and safe.

Author's Autobiography

Moti Nissani

educator, geneticist, inter disciplinarian.

Moti Nissani, USA inter disciplinarian, educator, geneticist, former member Association for integrative studies. Professor emeritus, Biology, Wayne State University, MI, USA.

Born

Nissani, Moti was born on March 27, 1947 in Jerusalem, Palestine

Nationality

United States of America

Ethnicity

Arab

Political Party

Revolutionary Party

Education

Bachelor in philosophy and psychology, Hebrew University 1972; Doctor of philosophy in Genetic, University Pittsburgh, 1975:

Career

Assistant, Professor interdisciplinary studies program.

Associate, Professor

1970-1971 – (Research assistant department psychology Hebrew University.

1972-1975 – (Teaching assistant, departments psychology and biology University Pittsburgh).

1975-1977 – (National institutes of health post doctoral trainee, department genetics University, Wisconsin).

1977-1978 – (Research fellow, school biological science flinders University South Australia).

1978-1980 – (Research fellow, center for development Biology).

1981-1986 – (Member, faculty department zoology Oregon State University).

1986-1987 – (Assistant, professor and chair national science division school humanities old College).

1987-1989 – (Visiting professor, interdisciplinary studies program Wayne State University).

Work

Author: Lives n the balance: The cold war and American politics, 1945-1991, 1995.

Contributor many articles to professional Journals.

Politics

1. Real Democracy. (Not plutocracy)

2. Constitutional money. (abolish the federal reserve)

3. No private money in politics.

Membership

Member Association for integrative studies.

Moti Nissani

Two Long-Term Problems:
Too Many People, Too Few Trees

NISSANI, Moti, is an interdisciplinarian holding degrees in genetics, philosophy, and psychology, and with many publications in genetics, ecology, politics, science education, and language instruction. At the moment he teaches at Wayne State University, USA. Recent writings include: "Conceptual conservatism: an understated variable in human affairs?" (1994); "The plight of the obscure innovator in science," (1995); "The greenhouse effect: an interdisciplinary perspective," (1996); "The apprenticeship approach to writing instruction," (1996); "Brass-tacks ecology," (1997); *Lives in the Balance: The Cold War and American Politics, 1945-1991*, (1992). His essay below provides a brief introduction to the twin problems of overpopulation and deforestation, specially written for this book, especially in Nepal's context.

In 1992, over fifteen hundred of the world's scientists— including more than half of all living Nobel Prize winners—signed *The World Scientists Warning to Humanity*. This document reflects growing concerns about the state of the biosphere:

Human beings and the natural world are on a collision course. Human activities inflict harsh and often irreversible damage on the environment and on critical resources. If not checked, many of our current practices put at serious risk the future that we wish for human society and the plant and animal kingdoms, and may so alter the living world that it will be unable to sustain life in the manner that we know. Fundamental changes are urgent if we are to avoid the collision our present course will bring about.

In an unusual joint statement of the same year, the Royal Society of London and the U.S. National Academy of Sciences concurred:

The future of our planet is in the balance. Sustainable development can be achieved, but only if irreversible degradation of the environment can be halted in time. The next 30 years may be crucial.

The facts speak for themselves. The chances of contracting cancer, emphysema, or asthma are far higher now than they were a century ago. Human sperm counts in many localities are worrisomely low. Many of us suffer from premature hearing loss traceable to excessive noise. We work longer hours than our parents did and spend more time getting to and from work. We are troubled by the effects of such things as lead and dioxin on our children's intelligence and health. We think twice nowadays before plunging, on hot summer days, into possibly contaminated rivers, lakes, or seas. We can no longer experience *true* wilderness. We are uneasy about poisons in our food and drinks; in our homes and workplaces; in our air, water, and soil; in our brains and livers; in our pets, domestic animals, lawns, and farms.

We are surrounded by signs of global environmental decline. Worldwide, some species of frogs, salamanders, and penguins are declining. We have apparently learned nothing from the extinctions of the dodo and the great auk, of the passenger pigeon and the moa. The continued existence in the wild of the most human-like minds we know of—those of apes and cetaceans—is in doubt. Entire fisheries are collapsing. Every hour we add 10,000 people to our numbers, acting as if there are no such things as carrying capacity and future generations; as if we have learned nothing from the environmental failures of earlier civilizations. We squander numberless resources unsustainably, acting as if each and every resource is replaceable. We continue to produce plutonium and other long-lived poisons, even though we know that nothing on earth can be safely sequestered for

millennia. We continue to litter space. When we fight pollution, we typically try to partially clean things up after the fact, instead of opting for the cheaper and healthier path of prevention. More harmful ultraviolet rays from the sun reach us nowadays raising the specter of skin cancer and cataract epidemics. Soil erosion, desertification, and deforestation are proceeding apace. We are seeing already the first signs of human-induced climate changes doing little more than crossing our fingers and praying that dire predictions of sizzling temperatures, floods, tropical diseases and mass migrations will prove wrong.

It takes a great deal of study and reflection to understand the nature, causes, consequences, and cures of just one of these environmental ills. No comprehensive coverage of any single ecological issue can be undertaken in this brief, introductory essay. Instead, I shall only limit myself to a few cursory remarks about two major interrelated challenges: overpopulation and deforestation. In doing so, I hope to alert you to the seriousness of both and to the need for collective and personal actions.

Human populations have always been in flux, for the simple reason that every day some people die while others are born. Throughout most of human existence, the number of births was slightly higher than the number of deaths; consequently, world populations grew at a very slow rate. A few hundred years ago, however, the situation began to change, especially in the industrialized world. With advances in nutrition, sanitation, and health, people live longer and more of them reach reproductive age. Thus, for the first time in our species' existence, the balance between the number of deaths and births has been significantly disturbed. Consequently, during the last three centuries or so, the global human population has been rapidly going up. Every year, in fact, the world's population grows by more than 80 million people. It is, for instance, sobering to recall that for every eleven human beings alive now, only one was alive in the year 1650!

As just one concrete example of this exponential growth, consider Nepal. In 1951, Nepal's population was 9 million. Less than half a century later that number rose to 23 million! And, with an annual growth rate of 2.5% and with the average Nepali woman giving birth to five children, there is no end in sight to this alarming growth. By this year's end, there will be roughly 575,000 more Nepalis alive than at its beginning. By the end of 1999, yet another 589,000 will be added, so that by the beginning of the third millennium, Nepal's population will be over 24,000,000. If this trend continues unchecked, Nepal's population will double in just 28 years, reaching, by the year 2026, a total of some 46 million. In 140 years, if this rapid growth continues (it can't), the number of living Nepalis will be 368 million (roughly equal to the current combined population of the North American continent: Mexico, the United States, and Canada)!

On first sight, it may appear that, when it comes to something as valuable as a human being, the more we have, the better off we are. In some ways, this is true. All things being equal, more people are likely to generate more inventions, more technological breakthroughs, and more corporate profits. But, taken as a whole, most ecologists are convinced that the world is already overpopulated.

Human populations cannot continue to grow indefinitely for the simple reason that the world itself is finite. To show this, let's consider Nepal again. Can this country comfortably support 44 million people, let alone 368 million? More people will need even more food than they need now, and therefore, the process of deforestation will continue so that, eventually, wild trees will vanish. As the population goes up, so does pollution of rivers, lakes, air, drinking water and soil. With more people both town and country become more crowded. The quality of life, and the value we place on human life, will continue to erode. When the population is stable, increases in such things as food production, number of physicians, or hospitals are often tantamount to improved quality of life, but such increases

often fail to keep pace with population growth. Higher population density is also likely to exacerbate crime, ethnic conflicts, and warfare.

The American government, to take another example, estimates that some 60,000 Americans die each year from respiratory diseases which are in turn caused by human made pollution. Fourteen Americans die each day from asthma aggravated by air pollution—three times the incidence of just twenty years ago. Needless to say, the situation in cities like Los Angeles, Kathmandu, Mexico, and Shanghai is even worse. In all these cases, the situation could be considerably improved by controlling pollution and population.

Moreover, the world, as we have seen, faces such frightening problems as desertification, depletion of nonrenewable resources (e.g., petrol, natural gas, helium), acid rain, loss of wild species, ozone layer depletion, and the greenhouse effect. A United Nations 1993 document puts it this way: "Population size and rates of growth are key elements in environmental change. At any level of development, increased populations increase energy use, resource consumption and environmental stress". So, the more people the world has, the more severe these problems are likely to become.

Thus large and rapidly growing populations make decisive contributions to all environmental problems. In the long run, efforts to save the biosphere depend in part on our species' ability to roll back its numbers. Yet there is a bright side to this otherwise grim tale: History and common sense tell us that we can control population growth. The German and Swedish populations, for example, defy world trends and are actually declining. In such overpopulated countries like China, Thailand, and Egypt the rate of population growth has slowed down remarkably: thanks to concerted government actions. How do these countries manage to reverse, or slow down, population growth? Many factors account for these remarkable declines: modernization, literacy, media campaigns, readily available family planning measures and

contraceptives, equal economic, educational, and legal opportunities for women. Human beings thus know how to control their numbers. What they have been lacking so far is the resolve to make use of this knowledge.

Let us move to another long-term problem: the state of the world's trees. Owing to rapid population growth, poverty, and other factors, many third world people are forced to move into, harvest, clear, burn, or cultivate tropical forests. Thus, population pressures—along with new technologies and the affluent lifestyle of some people—exacerbate the problem of deforestation. A country like Nepal has just so much arable land. So, as the population grows, more and more people are forced to convert forests into farmlands. They must also cut down more and more trees for fuel.

The people of rich countries are also guilty. To satisfy westerners' insatiable demands for hamburgers, more and more tropical rain forests in countries like Brazil are cleared and converted to pastures. Some rich people also buy mahogany furniture, newspapers, and other paper products in vast quantities. It is frightening to recall, for instance, how many trees must be felled to just produce the Sunday edition of the *New York Times!* Many forests are also damaged by pollution, tourism, construction of houses and factories, and similar practices. Moreover, the productivity and general health of the world's forests is threatened by such things as the greenhouse effect, ozone layer depletion, airborne pollution, and acid rain.

The deforestation crisis is not new. Many earlier civilizations, including those of the Middle East, New Mexico, and Easter Island, precipitated their own decline through overpopulation and deforestation. The difference is that we are destroying our forests faster, and on a larger scale, than ever before.

Earlier in this century, forests covered around 40% of the earth's total land area. By this century's end, that figure will stand at about 25%. The destruction of forests, in turn contributes to such things as the greenhouse effect,

irreversible loss of many thousands of species of plants and animals, landslides, soil erosion, siltation of rivers and dams, droughts, and weather extremes. For instance, as the trees of Nepal are cut down, its topsoil is gradually being lost and its rains are likelier to cause devastating floods in India and Bangladesh.

The eventual consequences of massive and ongoing deforestation are uncertain, but they are likely to damage the quality of life on earth, reduce the number of life forms that share the planet with us, and hamper the ability of the biosphere to sustain life. Humanity can continue to fell trees, cross its fingers, and hope for the best. Or it can take hold of its future and reverse the process of deforestation.

We can save our forests by controlling our numbers and our appetites. The list of remedies includes easing population pressure on tropical forests through effective investments in family planning efforts and through education of the third world's people. Moves towards participatory democracies, and a greater measure of economic sufficiency may also help to stabilize the numbers of the world's people and trees. Another remedy would involve greater efficiency in the use of wood products (enforced perhaps through a special tax) and recycling. Another measure would provide financial incentives for preserving forests and for sustainable forestry. Still another promising—but in the short term costly—step would involve massive tree plantings of abandoned deforested lands and of unused lands elsewhere (e.g., in cities, and along riverbanks, highways, and railroad tracks). Reforestation will in turn have the added benefits of conserving biodiversity, pristine wilderness, topsoil, and homes for indigenous people, and of minimizing desertification, flooding, and regional declines in rainfall.

Sometimes, the steps that can save the world's forests are surprisingly painless. Appropriate technology provides one way. In some Nepali villages, for example, more efficient cooking stoves (which give off the same heat while using less

wood) have been introduced. A Nepali woman remarked that, "this smokeless *chulo* (stove) has really reduced the smoke in my kitchen and uses less firewood." Besides saving trees, such stoves allow villagers to devote less time to gathering firewood and more time to education and other rewarding activities.

Many similar approaches are available. We can, if we want, have fewer people and more trees. We know that this can be done. We know how it can be done. We know that it ought to be done—for our sake, for the sake of our children, and for the sake of other creatures who share this planet with us. What we are still lacking is the wisdom, courage, and compassion to convert this knowledge into reality.