

Paper Name: VALUE AND ETHICS IN
PROFESSION Paper Code: HU 302
Total Contact Hours: 24
Credit: 2

II. Course Objectives:

1. To provide a values-based approach to ethical professionalism and to provide a method of thinking about and dealing with ethical issues in the work place.
2. To provide a discussion of what a profession is and what it means to act professionally.
3. To include a discussion of the features of moral reasoning and to provide a case resolution method for dealing with ethical issues of the work place.
4. To cover in-depth those values central to moral life of any professional: integrity, respect for persons, justice, compassion, beneficence and No maleficence, and responsibility.

III. Course Outcome (CO):

Upon completion of the course, students will be able to

1. Discuss real-world controversies in a sophisticated fashion, using critical thinking and argument analysis.
2. Identify the strengths and weaknesses of philosophical principles applied to everyday moral problems.
3. Analyze the coherence in the dynamic relationship between moral principles and moral facts.
4. Read, comprehend, and criticize philosophical analyses of the central problems in environmental ethics (including the proper boundaries of moral concern, the scarcity of natural resources, the policy options available to regulators and legislators, etc.)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO8	PO9	PO10	PO11
CO1			✓									
CO2				✓			✓					
CO3									✓			
CO4					✓						✓	

Module 1 :Introduction: Definition of Ethics; Approaches to Ethics: Psychological, Philosophical, Social.

Introduction :

This is an era in which the significance of morality is degraded. What people are concerned about is not morality, but benefits to themselves. There are, of course, many causes that lie behind this phenomenon. One is that human society underwent a rapid and substantial change over the twentieth century. The relationships between individual people, between people and society, and between human beings and the natural environment are very different from those of a hundred years ago. The moral system that solved the problems of the past may be unable to solve the complicated problems of today. Another reason is that societies of the past were typically monistic with uniform value systems, and today's societies are typically pluralistic ones in which different value systems operate together. No particular value system is believed to be able to give an absolute standard of what is right or wrong. At the same time, anthropologists say that different cultural patterns have different value systems and moral systems. There are no objective standards to judge which system is better or higher than the others. This gives an impression that value or moral systems are merely artificial products of human beings and have no independent authority.

This does not mean that our society no longer needs morality and that one can appeal to desires in judging what one should do or should not do. Everyone has numerous desires or wishes that are very often in conflict. One has to make decisions about which desire to satisfy and which to give up or postpone. How to make a right or correct decision and by what standard that one decision is right and another wrong is always a puzzle. One of the functions of morality is to give guidance in dealing with these puzzles.

On the other hand, there are always conflicts among people. It is always a problem for a society to maintain order and to prevent or solve the conflicts among people reasonably. Another function of morality is to provide principles and rules that are acceptable to everyone and encourage people to live together peacefully and cooperatively.

Traditional moral standards and moral rules that played a very important role in the lives of people of the past have somewhat lost their power today. If the moral standards or moral rules of the past are taken as the only guidance for

action and moral judgment, and these moral standards and moral rules are in fact not entirely suitable to our society, people will take this as evidence that morality is no longer significant, and the function of morality as described above will vanish. Many problems will then arise in people's lives and in society. It is therefore not appropriate to appeal blindly or dogmatically to the moral rules of the past whenever morality is mentioned as if they are the only moral standards humans have. Instead, it may be better to go back to the ethical theories to reflect upon the meaning and the end of morality and see what kind of principles can be a guide in taking action or in making moral judgments. The purpose of this module is to introduce some fundamental ethical theories that have had a great influence on the moral thinking of the past and, I believe, still give a great deal of enlightenment in dealing with the problems of morality today.

More than two thousand years ago, Aristotle pointed out that moral education consists of two parts. One is to establish good habits of conduct. The reason is that it is a preliminary and necessary condition for being a moral person to develop good dispositions, and disposition is a matter of habit. Thus one has to develop a habit of pursuing justice or a disposition to be just if one wants to be a just person. What Aristotle means by saying this is that moral practice is a very important factor in being a moral person. One cannot have a moral character or become a moral person if one does not constantly practice to be moral, even though one might have correct moral ideas. This is just like a pianist who UNESCO – EOLSS SAMPLE CHAPTERS INSTITUTIONAL ISSUES INVOLVING ETHICS AND JUSTICE – Vol.I - Ethics Fundamentals and Approaches to Ethics - Encyclopedia of Life Support Systems (EOLSS) would not be a good pianist if she did not practice regularly even though she knows in her mind how to play the piano. The other part of moral education, according to Aristotle, is to know why one should be moral. One often has to give up some benefits for morality and one would not do so or at least would not be willing to do so if one did not know why one should be moral or why it is good to be moral. This is like taking medicine. Nobody is willing to take medicine not knowing what is good about it. But one would if one knew that it would promote health. What Aristotle wishes to bring out is the importance of moral theory that shows the significance or the good of morality.

Developing a moral habit is a matter of educational psychology and will not be discussed in this article. Instead, the focus is on why one should be moral and what are the moral principles that one should observe. The discussion will be

pursued through the introduction and analysis of some fundamental ethical theories.

2. Utilitarianism

The utilitarianism, holds the end of morality and the standard of the distinction of right and wrong which are not one's own benefit or happiness, but that of the whole community. Jeremy Bentham, the founder of utilitarianism, said that it is the happiness of the party whose interest is considered that determines whether behavior is right or wrong: "if that party be the community in general, then the happiness of the community; if a particular individual, then the happiness of that individual." What Bentham means by this is that every action has some effect on the interests of some party. Sometimes the party concerned is a particular individual, sometimes a family, and sometimes the whole community. It is the happiness of the whole party, whose interests are affected by the action, that determines whether the action is right or wrong. Thus, any action that tends to increase the happiness of the party concerned is approved, and any action that tends to diminish the happiness of the party concerned is disapproved. Bentham called this principle "the principle of utility" and regarded it as the highest principle of morality, from which all moral rules such as "Thou shall not kill" and "Thou shall not steal" are derived.

Why is the principle of utility the highest principle of morality? Why should the happiness of the whole community be pursued as the end of individual actions? Why is the happiness of the community, rather than of individuals, the standard of judging what is right and what is wrong? The foundation of the principle of utility, according to Bentham, is that individuals all by nature pursue pleasure and avoid pain in all actions, and so they alone determine what they shall do and at the same time point out what they ought to do. This foundation is the same as that of egoism. Granting, though, that it is a fact that everyone by nature pursues their own pleasure does not yield the conclusion that the happiness of the whole community, rather than of oneself, is the end of actions and the standard of judging what is right and what is wrong. Thus, there must be some other reason for advocating that the principle of utility is the highest moral principle. Bentham later says that the principle of utility is the highest principle of morality because it is the most reasonable principle to be the ground of moral rules. For instance, if one asks what is the reason that individuals should not steal or should not lie, the only reason given is that it is against the principle of promoting the greatest happiness of the greatest number of people. All the other reasons given by other theories are not

as satisfactory as the principle of utility. Sympathy, for instance, is too subjective to be the universal and impartial principle of what is right and what is wrong. God's will, on the other hand, is too ambiguous, needs to be interpreted, and can be reduced to the principle of utility. John Stuart Mill, the most outstanding disciple of Bentham, when talking about the sanctions that explain the motives of people to observe the principle of utility says that everyone has social feelings that are the desires to be in unity with others. It is these social feelings that are the foundation of our conscience and that support the principle of utility. If this is true then humans are not as egoistic by nature as the egoists believe. Our nature is to pursue happiness, not only our own, but also that of our fellow humans. This explains why the happiness of the whole community, rather than just of oneself, is the standard of right and wrong. Given that individuals all have social feelings by which they desire the good of the whole community and selfish feelings by which merely their own good is pursued, the question can be asked why the former and not the latter should be followed when these two feelings are in conflict with each other? Mill has a ready answer to this question. He says that the happiness deriving from social feelings is qualitatively higher than that deriving from selfish feelings. What he means is that of two pleasures one of them is, "by those who are completely acquainted with both, placed so far above the other that they prefer it, even though knowing it to be attended with a great amount of discontent, and would not resign it for any quantity of the other pleasure." Individuals are then justified to conclude that the one preferred is qualitatively higher than the other even though it is quantitatively smaller. For instance, Mill believed that the pleasure of being an actively intelligent person is higher. Utilitarianism has been a popular ethical theory in Britain and the United States since the end of the eighteenth century when Bentham's *Introduction to the Principles of Morals and Legislation* was published. It has had a tremendous influence upon the moral ideas and the legal systems of both countries. There are reasons why this theory is so appealing. First, it has offered an objective standard for moral judgments. The happiness of the people is observable, and so moral judgments become verifiable. Second, happiness, or pleasure plus absence of pain, has been taken as an end and good in itself since the time of Socrates, and most people would say that happiness is the end or at least one of the ends of life. Third, the theory is in line with our moral common sense that moral actions are beneficial and immoral actions are harmful to the community. Utilitarianism, however, has weaknesses. First, it is difficult to calculate the amount of the happiness produced by an action. It is also not easy to judge whether the pleasure is greater than the pain produced by an action. Nor is it easy to compare one person's happiness with that of another. If the happiness

of the people concerned is the standard of moral judgments, this difficulty weakens the power of this moral standard. Second, is it true that moral actions necessarily bring about benefit to the people concerned and immoral actions do them harm? Judges who stick to the law when handling legal cases are good judges from a legal point of view even though the consequence of their handling some cases may not benefit the people. On the other hand, judges who take the benefit of the community, instead of the law, to be the standard for handling cases are definitely not good judges. In other words, there is often a mismatch between what utilitarianism requires and what our deep-seated feelings believe is appropriate. than that of being a happy fool: "It is better to be Socrates dissatisfied than a fool satisfied."

3. Approaches to Ethics :

Since Aristotle's writing of the *Nicomachean Ethics*, philosophers have sought to understand the nature and scope of ethical reasoning. Some of the most insightful attempts have been those which worked to integrate the investigation of ethical questions with related topics in other areas of knowledge. Such related areas have included epistemology, metaphysics, and the social sciences. In this paper, we will consider attempts to understand the nature of ethical reasoning which bring psychological and philosophical issues into a common forum. Psychology and philosophy have been veritable ~~bosom buddies," particularly since the dawn of modern (post-medieval) philosophy.

Modern philosophers, often beginning from an epistemological standpoint, have on many an occasion blundered unwittingly into doing primitive psychology. Hume's lengthy and detailed treatment of the emotions in the second *Enquiry*. Others have been openly enamored to a prominent psychological perspective, and have sought to remake philosophy accordingly. In W.V. Quine's *Word and Object*, behaviorism and epistemology become one. Hopefully, these two approaches do not exhaust the alternatives. Whatever approach one chooses, philosophers cannot afford to overlook the many insights afforded them by contemporary psychology. This is especially the case in regard to the study of ethical reasoning. Moral or ethical reasoning (we shall use the terms synonymously) denotes the thinking processes which plays part in the making of moral decisions.

Philosophers historically have made numerous attempts to define in some detail the nature of these processes. The study is made problematic by the fact that philosophers are concerned not only with describing how people do often think, but also how they ought to think. That is, it is occupied with prescriptive

as well as descriptive considerations. To define moral reasoning, for most philosophers, is to offer a normative theory which, when consistently applied, correctly sets the boundaries of morally acceptable conduct. 1 Having defined a theory, it is put to the test over a wide range of applications in search of counterexamples—instances in which the method of reasoning turns out to be flawed, leading to undesirable consequences. Thus utilitarian theories are challenged by cases in which the sacrifice of a minority appears to bring about the greatest number; Kantian deontological theories are tested by cases in which actions judged inherently wrong by the theory (e.g., lying) appear to actually be justified when alternative actions seem to lead to even worse consequences (not lying, and sacrificing a life). Moral theories which yield outcomes which are clearly contrary to the standard intuitions or widely accepted moral beliefs of one's moral community are either rejected or modified to cover the adverse cases. Essential to the process of testing moral theories, as we have described it, is the availability of a relatively unquestioned standard against which the outcomes of a theory can be tested. This standard may be revealed truth (the Bible), but for many philosophers it is simply a set of actions or qualities the normative acceptability of which is basically uncontroversial. Hence, a theory which allows, across the board, for arbitrary taking of life, stealing, or cheating is obviously unacceptable. Likewise, an approach which does not find a place of merit for such praiseworthy qualities as altruism or fairness is an approach destined for the ethical scrap pile. Only after a theory passes these initial, uncontroversial tests, can it be then applied to more difficult ethical issues in which no standard or agreed-upon intuitions are available to guide the way. The basic intuitions of a moral community are those which play the most central part in what are often referred to as "value systems".

Value theory is an important point of confluence of philosophy and psychology. Philosophers are concerned with identifying the most fundamental values, and the role they play in moral reasoning. Psychologists seek to describe the formation, maintenance, structuring and change of value systems, especially as values have impact upon behavior. We will discuss values and their relation to moral reasoning when treating "attitudes" in a later section. An even more important juncture of philosophy and psychology has to do with defining the concept of "rationality". As we shall observe in the next section, philosophers have often disagreed on what they view as "rational" procedure. One may mean simply being consistent, or one may go further to state the ends with which one must be consistent. Psychologists also discuss the concept of rationality, but generally extend its meaning beyond a purely cognitive sense to embrace the

idea of a high or efficient level of individual functioning. How this expanded notion of rationality relates to the judgment of good and bad ethical reasoning will be a topic of interest in the latter portions of this paper. At this point, we note five important issues surrounding ethical reasoning and rationality:

- (1) What does it mean to be "rational" in one's moral reasoning?
- (2) To what extent is reason (cognition) a determinant of the individual's moral decisions? Are moral decisions the result of reasons, causes, or both?
- (3) To what extent can an individual become more rational in his moral decision-making?
- (4) To what extent is it desirable that moral decision making be a cognitive, rational process (e.g., in some cases, a warm heart might be preferable to a "cold, calculating mind")?
- (5) Can psychological characterizations of moral reasoning styles aid us in evaluating philosophically-constructed ethical theories?

In the following section, we will survey some of the attempts of philosophers and psychologists to answer these difficult questions. In order to highlight one important variable (relating to question No.2), we arrange the surveyed theoretical approaches along a cognitive-non cognitive continuum. Highly cognitive approaches are those which stress that reasoning plays a significant role in the formation of values and beliefs, and in deciding verbal and behavioral outcomes. Non-cognitive approaches are those which interpret moral decision making, and the process of moral reasoning in general, as largely the result of non-rational causes, whether internally generated or the product of environmental impingements. It turns out that both philosophers and psychologists have staked out a number of positions on the cognitive-non cognitive continuum.

Module 2: Psycho-social theories of moral development: View of Kohlberg; Morality and Ideology, Culture and Morality, Morality in everyday Context.

Moral Development :

Although moral development has been studied from a variety of psychological perspectives, including learning theory, psychoanalysis, and others, current studies of moral development have been strongly influenced by the cognitive developmental approach of Jean Piaget and Lawrence Kohlberg. Kohlberg identified several fundamental philosophical issues underlying studies of moral

development, such as the question of a culturally fair definition of the construct. Psychologists studying morality or moral development must deal with the problem of moral relativism or value neutrality, which stems from the value-laden words “moral” and “development.”

Moral relativism is the position that moral values differ among cultures and peoples and are therefore not universal. Conceptually, we must distinguish ethical moral relativism from descriptive moral relativism, because the relevant reasoning and evidence differ. Ethical relativism insists that basic values held in different cultures are equally right. Descriptive relativism simply holds that, factually, moral values held by people vary with culture. Ethical relativism may have value in guiding cross-cultural research in culturally fair ways. For Western psychologists, it might have the principal effect of restraining easy applications of their own conceptions to other cultures—important because Western psychologists have had more opportunities to apply the theories of their own cultures to other non-Western cultures. For non-Western psychologists, the doctrine of cultural relativism may have the effect of raising the status of their culture-bound conceptions or values. However, the doctrine of relativism has the pitfall of leading people to the position that any psychological phenomenon in a culture should be understood and evaluated only by its own cultural standards. Considering the increased interactions between cultures and the global problems that require collaboration between societies, relativism includes a problem to be overcome.

Kohlberg argued that the formal and structural aspects of morality are universal, while the content of morality can vary with culture. In addition, he believed the criteria of adequacy and superiority of moral principles are intrinsically encompassed in the sphere of moral reasoning. Namely, universalizability and prescriptively of principles are formal criteria of morality. Universalizability implies that the moral principles should be applicable to anywhere, anytime, and anyone without morally relevant differences, and prescriptively implies that moral principles should have obligatory nature in contrast to preference statements. Finally, Kohlberg stood against both descriptive and ethical relativism in moral reasoning. However, Kohlberg's universality claim has been exposed to the criticism that it displays a degree of ethnocentrism, because his stages reflect the moral ideals of particular cultures, especially the male culture of the U.S.

KOHLBERG'S LEVELS OF MORAL REASONING

Lawrence Kohlberg (1984) theory of moral development describes six stages of moral reasoning at three different levels.

Pre-conventional Level

The first two stages are described a pre-conventional levels of moral reasoning. Here right and wrong are based primarily on external circumstances (punishments and rewards).

Stage 1 - Punishment.

At the very lowest stage of moral reasoning, your behavior is guided primarily by the need to avoid punishment You are motivated to act not by what is right and good; rather, by what will enable them to avoid some unpleasant condition.

Stage 2 - Rewards.

At this stage, your behavior is determined primarily by what will earn you a reward. You are motivated to act based on what will earn them something they desire.

Conventional Level

The next two stages are at the conventional level. There are internal standards involved in determining right and wrong; however, there is little reflection or personalizing of these standards.

Stage 3 - Social Approval.

This is sometimes called the good-boy/good-girl stage. Here, your behavior is guided by that which is approved by others or by social conformity. In regards to all moral questions, that which is approved by the dominant social group your the final authority.

Stage 4 - The Law.

Your behavior at this stage are determined by laws and rules. In all moral questions the law or rule is the final say, the ultimate authority. Post-Conventional, Autonomous, or Principled Level At this level of moral reasoning represent the beginning of autonomous thought.

Stage 5 - Social Contract.

At this stage you agree to obey rules and laws in order to preserve social order; however, you realize the fallibility of these rules and laws. Laws are created based on what you perceived to be the greatest good for the greatest number of people at a particular time and place.

Stage 6 - Universal Principle.

This is the highest level moral reasoning. Here you realize that Truth is the final reality. Right action is determined by your conscience in accordance with a set of Universal principles regardless of the consequences.

Morality in everyday life

How people distinguish between actions that are “right” and “wrong” affects many important aspects of life. Morality science— informed by philosophy, biology, anthropology, and psychology—seeks to understand how the moral sense develops , how moral judgments are made , how moral experiences differ among individuals, groups, and cultures , and what the psychological implications of the morally “good” or “bad” life . Insights from contemporary morality research have mostly been gained through the analysis of moral vignettes, questionnaire data, and thought experiments such as trolley problems . As important as these approaches are, they are all limited to some extent by the artificial nature of the stimuli used and the non-natural settings in which they are embedded. Despite considerable scientific and practical interest in issues of morality, virtually no research has taken morality science out of these artificial settings and directly asked people about whether and how they think about morality and immorality in the course of their everyday lived experience. Here we present an attempt to capture moral events, experiences, and dynamics as they unfold in people’s natural environments. Using ecological momentary assessment , we addressed a number of fundamental key issues in scientific and public debates about morality:

(i) How often do people commit moral and immoral acts in their daily lives? How often are they the targets of moral and immoral acts? How often do they witness moral and immoral acts in their environment, or learn about them through indirect channels such as social media?

(ii) What are these moral experiences about? In particular, an influential taxonomy of moral dimensions, moral foundations theory can account for

descriptive content, and whether everyday moral experiences highlight understudied dimensions of morality.

(iii) Given the ongoing debate about whether religion is a necessary foundation for morality, is there evidence that religious people actually commit more moral or fewer immoral deeds than nonreligious people? And can we replicate evidence for a political morality divide between liberals and conservatives?

(iv) What is the empirical connection between morality, momentary happiness, and meaning in life (i.e., sense of purpose)? For instance, does committing moral deeds likewise boost momentary happiness and sense of purpose?

(v) Finally, our approach affords the possibility to study the temporal dynamics of morality. For instance, are people more likely to do something good if they have become the targets of a moral deed themselves (moral contagion)? And can we replicate moral self-licensing effects demonstrated in the lab (18) in the context of everyday social interaction, whereby committing a prior moral act leads people to relax their moral standards with regard to subsequent behavior?

By tracking people's everyday moral experiences, we corroborate well-controlled but artificial laboratory research, refined prior predictions, and made illuminating discoveries about how people experience and structure morality, as well as about how morality affects people's happiness and sense of purpose. A closer, ecologically valid look at how morality unfolds in people's natural environments may inspire new models and theories about what it means to lead the "good" or "bad" life.

- Module 3 ∴ Ethical Concerns: Work Ethics and Work Values, Business Ethics, Human values in organizations: Values Crisis in contemporary society, Nature of values: Value Spectrum of a good life.

Human values are an essential element and the positive qualities can be shared. When practiced at work, they are the internal motivators to do the best and reinforce good character, morality and ethics. Ethical behaviour is a by-product of practicing human values. Human values and ethics have a significant role to play in the workplace, as ethical business and employee practices are the mantra to economic success. Workplace ethics leads to happy and satisfied employees who enjoy coming to work rather than treating it as a mere source of burden. Employees also develop a feeling of loyalty and attachment towards the organization. A relook at workplace ethics and values has become mandatory keeping into view the numerous cases of fraud, crimes, corruption and abuse of workplace rights, responsibilities, resources, standards and code of conduct that has been witnessed in the business world. Many such cases have led to detrimental effect on the environment and mankind while some others have shook the world economy to the core and mandated the focus on ethics, values and workplace privacy to be given much importance. Workplace ethics also go a long way in strengthening the bond among employees and most importantly their superiors. Values are the embodiment of what an organization stands for, and should be the basis for the behavior of its members. However, what if members of the organization do not share and have not internalized the organization's values? Obviously, a disconnect between individual and organizational values will be dysfunctional. This book on 'Workplace ethics and Values' has been compiled with a purpose to refocus attention on these important issues in managing human resources at workplace with proper ethics, dignity and values. This definitely has long-term benefits.

Ethics and Human resource management

Human resource management occupies the sphere of activity of recruitment selection, orientation, performance appraisal, training and development, industrial relations and health and safety issues. Business Ethicists differ in their orientation towards labour ethics. Some assess human resource policies according to whether they support an egalitarian workplace and the dignity of labour. Issues including employment itself, privacy, compensation in accord with comparable worth, collective bargaining (and/or its opposite) can be seen either as inalienable rights or as negotiable. Discrimination by age (preferring the young or the old), gender/sexual harassment, race, religion, disability, weight and attractiveness. A common approach to remedying discrimination is affirmative action. Once hired, employees have the right to occasional cost of living increases, as well as raises based on merit. Promotions, however, are not a right, and there are often fewer openings than qualified applicants. It may seem unfair if an employee who has been with a company longer is passed over for a promotion, but it is not unethical. It is only unethical if the employer did not give the employee proper consideration or used improper criteria for the promotion. Potential employees have ethical obligations to employers, involving intellectual property protection and whistle-blowing. Employers must consider workplace safety, which may involve modifying the workplace, or providing appropriate training or hazard disclosure. Larger economic issues such as immigration, trade policy, globalization and trade unionism affect workplaces and have an ethical dimension, but are often beyond the purview of individual companies.

Foundations of Ethics in Workplace:

A successful business depends on the trust of various parties—employees, managers, executives, customers, suppliers, and even competitors. Six ethical terms form the foundation of business in general and ethics in workplace in particular:

- Ethics
- Values
- Morals
- Integrity
- Character
- Laws

Ethics

Ethics refers to a set of rules that describes acceptable conduct in society. Ethics serve as a guide to moral daily living and helps us judge whether our behaviour can be justified. Ethics refers to society's sense of the right way of living our daily lives. It does this by establishing rules, principles, and values on which we can base our conduct. The concepts most directly associated with ethics are truth, honesty, fairness, and equity. While ethics is a societal concern, it is of critical importance to the professions that serve society. Because professionals such as physicians, attorneys, engineers, and property and facility managers provide services that affect our welfare, they develop professional codes of ethics that establish professional standards for behaviour. Examples of the types of standards found in professional codes of ethics include:

- An attorney or physician maintaining client-patient confidentiality
- An accountant not using client information for personal gain

Values

Values are defined as the acts, customs, and institutions that a team of people regard in a favourable way. Statements of value typically contain words of approval, disapproval, and obligation. Some of these words might be good, bad, should, and should not. However, value judgments do not have to contain specific value words. "That is a lie" does not contain a particular word of disapproval, but the implication that a lie is wrong is understood. Values are what really matter to us most—what we care about. For instance, family devotion, respect for the environment, and working hard for a day's pay are three values that can evoke a response in many people.

Morals

Morals are a set of rules or mode of conduct on which society is based. Certain moral elements are universal, such as the laws forbidding homicide and the basic duties of doing good and furthering the well-being of others. With morals serving as the underpinning of society, there are four points we should remember, says philosopher Robert C. Solomon.

- Moral rules are important: In general, moral rules are rules that help society function in a civilized way.

- Morality consists of universal rules: They apply to everyone, everywhere, and are recognized by everyone as being necessary.

- Morals are objective: They do not consider personal preferences. Right is right and wrong is wrong.
- Morality affects other people: Morality involves considering the well-being of others as reflected by the Golden Rule: Do unto others as you would have them do unto you(Treat others as you like to be treated by others- Bible)

Integrity

To have integrity is to be honest and sincere. Integrity is defined as adhering to a moral code in daily decision making. When people and businesses possess integrity, it means they can be trusted. On the other hand, companies that lack this quality and mislead customers with inferior products or false advertising will suffer the consequences.

Character

Ethics is not just how we think and act. It is also about character. Character drives what we do when no one is looking. Each person has the ability to build, change, or even destroy his or her own character. We can build our character through the way we live—by thinking good thoughts and performing good acts. Similarly, bad thoughts and behaviour can destroy our character. A person with character has high morals and will act morally in all situations by choice, not force. A person with character will honour his or her commitments. Character pertains to organizations, as well. A company with high character is worthy of trust and respect, acts honestly, and stands by its promises.

Laws

The law is a series of rules and regulations designed to express the needs of the people. Laws protect people from the most blatant and despicable affront to morality, such as murder, rape, and theft. Laws frequently provide us with a sense of right and wrong and guide our behaviour, but not always. While murder is against the law, the law does not always stop someone from killing another out of hatred, anger, or in defence of a personal philosophy. Laws are instituted as notions of justice and tend to be specific, yet diverse within different societies. Laws have always had a strong connection to morality, ethics, and values. But, not all laws are ethical. Laws have legalized slavery, segregation, sexism, and apartheid. Although these laws might have reflected society's values at the time they were enacted, they could not nor will they ever

justify immoral behaviour. Likewise in business, it is not unlawful to lie to a co-worker or on a job application, but both are ethically wrong.

These six concepts—ethics, values, morals, integrity, character, and laws—form the foundation of trust upon which ethical business practice is built.

Value Crisis :

The deepening value crisis in the contemporary Indian society is casting its evil shadow in all walks of our life. Even after fifty years of progress in different fields – economic, industrial, scientific, educational – it is doubtful if we are moving towards creation of a just society, a happy society, a good society. The promises of the ‘tryst with the destiny’, and the dreams of prosperity, social wellbeing and human happiness are proving to be false. The anguish over this disillusionment finds expression in so many ways, in literature, art, academic seminars, public discussions and in private conversations. They reflect the inner pain and frustration of sensitive individuals. However, these emotive expressions do not help much in understanding the nature of the crisis, its different dimensions, causes and possible remedies. In the absence of rational conceptualization of the problem, mere emotional reactions create a sense of fatalistic resignation. A large segment of our intelligentsia appears to be under the grip of such a pensive helplessness. The rest have retreated into the closed sanctuary of their own personal self-interests.

It is a daunting task to examine the nature of today’s value crisis in this gloomy climate. Yet, there is no escape from it either. One must grapple with it as best as one can. The pervasive crisis has many inter-related dimensions and interleaved layers. Any intellectual probing into it must first untangle this web to identify its main features so that they can be analysed and cognitively grasped. We begin this task by examining the nature of the value crisis in different spheres of our life. These spheres may be categorized as individual, societal, intellectual and cultural.

Elements of Value Spectrum

Material Values:

Values associated with material aspect/comfort of living are called material values.

Societal Values:

Good life can be lived only in a good society. Such society provides peace, harmony and general well-being with overall growth. This is necessary to ensure social cooperation for production of material and social goods. In a good society everyone is aware of their rights, earning a livelihood and freedom to blossom to their potential. Societal values refer to making a good society. They are operatives in social structures and the basic social institutions created by society. Take for example, Justice. On one hand it means people getting their rightful dues, reward, recognition, respect for rights, liberties, meeting valid demands, on the other hand the area of law, legal justice is a formal procedure followed by courts adjudicating conflicting claims of litigants. Some values relevant to societal values are: Rule of Law, Democracy, Secularism.

Spiritual Values:

The values of truth, righteousness, peace, love, forgiveness and non-violence are found in all major spiritual paths. These spiritual values are also human values and are the fundamental roots of a healthy, vibrant, and viable work career.

Psychological Values:

One must possess sound mental health, maturity for a good life. There should not be any stress, psychological conflicts.

Aesthetic Values:

Creation and enjoyment of beauty are part of a good life. A careful cultivation of taste for appreciating beauty in art, nature and life leads to bliss and is called Aesthetic values.

Moral Values: A good person must be a moral person, his personal conduct and social interrelations must be based on ethical principles. Ethical and moral values occupy the centre stage in good life.

Human Values:

All these different values go into making a good human being and a good human society. Therefore collectively they constitute human values. Additionally, the concept of humanism uses the term 'human values' to signify the importance, dignity and centrality of human person in the whole scheme of values.

- Module: 4. *Ethics of Profession:*

Engineering profession: Ethical issues in Engineering practice, Conflicts between business demands and professional ideals. Social and ethical responsibilities of Technologists. Codes of professional ethics. Whistle blowing and beyond, Case studies.

WHAT IS ETHICS?

Ethics is the science of conduct. It considers the actions of human beings with reference to their rightness or wrongness. The word "ethics" is derived from the Greek word ethos, which means "character". Mackenzie defines ethics as —the study of what is right or good in human conduct or —the science of the ideal involved in conduct. It is a branch of philosophy, specially the moral philosophy that studies the evolution of concepts; such as right or wrong behaviour. So, it is clear that ethics is the study which determines rightness or

wrongness of actions. Ethics then, we may say, discusses men's habits or customs, or in other words their characters, the principles on which the habitually act and considers what it is that constitutes the rightness or wrongness of these principles, the good or evil of these habits. Ethics is the word that refers to morals, values, and beliefs of the individuals, family or the society.

The word has several meanings.

First, it is an activity and process of inquiry.

Second, it is different from non-moral problems, when dealing with issues and controversies.

Third, ethics refers to a particular set of beliefs, attitudes, and habits of individuals or family or groups concerned with morals.

Fourth, it is used to mean morally correct'.

The study on ethics helps to know the people's beliefs, values, and morals, learn the good and bad of them, and practice them to maximize their well-being and happiness. It involves the inquiry on the existing situations, form judgments and resolve the issues. In addition, ethics tells us how to live, to respond to issues, through the duties, rights, responsibilities, and obligations. In religion, similar principles are included, but the reasoning on procedures is limited. The principles and practices of religions have varied from time to time (history), region (geography, climatic conditions), religion, society, language, caste and creed. But ethics has grown to a large extent beyond the barriers listed above. In ethics, the focus is to study and apply the principles and practices, universally.

PROFESSIONAL ETHICS:

Professional ethics are those values and principles that are introduced to an individual in a professional organization. Each employee is meant to strictly follow these principles. They do not have a choice. Also, this approach is imperative in professional settings as it brings a sense of discipline in people as well as helps maintain decorum in offices. Some examples may include

confidentiality, fairness, transparency and proficiency. These ethics make employees responsible.

Features of professional ethics:

- Openness
- Transparency
- privacy
- Impartial
- Practical and un-biased
- Loyal
- Co-operative
- Objective oriented

Personal vs. Professional Ethics:

What's the difference between personal and professional ethics? The ethics that you adhere to in your personal life and those that you comply with in your professional life are different in certain aspects. Without certain ethics, human beings would be incomplete and shallow. Thus, they have different systems of ethics in different places. The biggest difference between personal and professional codes of conduct is perhaps the strictness with which people conform to them. The values that you define for yourself are up to you to be followed or not to be followed. However, those defined in a company or by a profession must be followed by you, since breach of these principles or rules may harm your reputation and status. But if you do not adhere to your personal ethics, it might hardly make a difference, depending on the circumstances. Even then, you must keep in mind that violation of your own rules may harm others around you.

Engineering Ethics

• OVERVIEW :

Engineering Ethics is the activity and discipline aimed at (a) understanding the moral values that ought to guide engineering profession or practice, (b) resolving moral issues in engineering, and (c) justifying the moral judgments in engineering. It deals with set of moral problems and issues connected with engineering. Engineering ethics is defined by the codes and standards of conduct endorsed by engineering (professional) societies with respect to the particular set of beliefs, attitudes and habits displayed by the individual or group. Another important goal of engineering ethics is the discovery of the set of justified moral principles of obligation, rights and ideals that ought to be

endorsed by the engineers and apply them to concrete situations. Engineering is the largest profession and the decisions and actions of engineers affect all of us in almost all areas of our lives, namely public safety, health, and welfare.

- SCOPE:

The scopes of engineering ethics are twofold:

1. Ethics of the workplace which involves the co-workers and employees in an organization.
2. Ethics related to the product or work which involves the transportation, warehousing, and use, besides the safety of the end product and the environment outside the factory.

Ethical Issues in Engineering Practice:

It is imperative for engineers to accept the responsibility for their actions, while practicing their occupation, and demonstrate, through their behavior, that engineering ethics is the heart of the profession. Engineering ethics must be the roadmap of the behavior of engineers while they are leading the society to the challenges of facing the future in the effort to achieve a more meaningful life. As the international activities expand the practice of engineering across the state boundaries and continents, so must the engineering community adapt to more global thinking and solving problems which are no longer local but affect the entire human race. These challenges can be met best by making a conscientious effort to acquire understanding of ethical issues by considering ramifications of each and every decision, by following test cases dealt with in courts of law across the world, by examining recalls of various products, by being involved in professional engineering societies, and by exercising the total dedication and commitment to professional integrity.

- The Legal View

Engineers who are asked to cut corners should first understand the company's legal obligations to its customers. According to common law, a product must be fit for the purpose for which it is sold. If a new ballpoint pen does not write, the merchant must refund the customer's money. This is known as failure of consideration. In the United States, the Uniform Commercial Code develops this into the idea of implied warranty. If an automobile is sold as scrap metal, it need not run. But if it is sold as an automobile, the buyer has a right to expect it to provide basic transportation. Except in special cases, implied warranty

governs in spite of what the written warranty says. One exception is a used car that bears the notice, "As is," which means that for legal purposes it is scrap metal. If a company asks its engineers to design a product that will not serve its basic purpose, it violates the law by selling it. The firm also has a legal obligation to provide a safe product.

There are three main theories of product liability: a contractual theory, a due care theory, and the theory of strict liability. They are described more fully by Velasquez (1992). The contractual theory asserts that classical contract law is adequate for matters of product liability. The product should be safe because, if unsafe, it is unfit for its intended purpose. However, the seller is liable only for contractual damages and not for additional harm the buyer may suffer. If, however, the seller commits fraud (deliberate deception), it could be criminally liable.

The due care theory, popular in Europe, burdens the seller with exercising due diligence to make sure the product is safe. If it is not diligent, it could be liable for damages due to defects. The standard of care is defined by statute. This is in fact the origin of the International Standardization Organization (ISO) quality standards that are now used around the world. The strict liability theory rules in the United States. It holds the seller liable for damages, no matter how carefully it designs and tests the product. Curiously, this rule is not enforced by statute but evolved out of U.S. case law.

The pros and cons of strict liability are discussed by Brenkert (1997). The doctrine of implied warranty does not apply to projects for which a firm signs a contract. Rather, the theories of contracts and negligence operate. Most contracts contain detailed specifications that the engineer must observe. They also generally specify that the job must be done in a "workmanlike manner," which requires that it meet generally accepted standards for similar work.

If the firm asks engineers to perform work that is below the quality that the community has come to expect in similar projects, the firm risks being sued for breach of contract. Safety issues are covered by the theory of negligence, which normally is a tort (a civil wrong) but can be a crime in some cases. A firm that builds an unsafe bridge or heart valve can be held liable for damages if it is negligent, meaning that it did not exercise due care. The standard of care is defined by generally accepted norms in the engineering profession. Professional associations often publish manuals that specify constraints, such as minimum tolerances, in order to ensure safety. 5 The law therefore relies heavily on the professional status of engineering.

The Engineer's Duty

Legal considerations alone may not address the engineer's dilemma. They may leave it unclear what the engineer should do when the firm acts illegally, or when the firm's behavior is within the law but odious on other grounds. It is useful here to recall the distinction of professional obligations from other obligations. In the area of quality and safety, an engineer's professional obligation is fairly well defined. It is to live up to the expectations the profession has created. The public expects a building, for example, to be totally safe from collapse except in the case of extraordinary disaster. A firm's bid must cover the cost of this kind of safety. The U.S. public expects a product to be absolutely safe in normal use. This is reflected in the strict liability theory. The European public expects the product to meet specifications. This expectation varies across cultures. Volvos are built like tanks because Scandinavian culture emphasizes protective and systemic safety (as reflected by elaborate social welfare systems), whereas Ferraris emphasize maneuverability because Italians prefer to be safe by taking individual action (as reflected by dysfunctional social systems).

In some cases, however, professional ethics do not settle the matter. Expectations may be unclear or insufficiently demanding. An instance of the former is the O-ring failure in the Challenger project (Boisjoly et al, 1989). It is hard to say what are the expectations of the public, or even of astronauts, for the safety of space exploration. In such cases one must fall back on more general theories of normative ethics. A utilitarian analysis is sometimes helpful. Suppose that only one firm is licensed to sell a certain drug that cures a debilitating illness. It has a choice between making the drug safe and expensive, or risky and cheap. Only a few people can afford the expensive drug. The cheap drug cures far more people but makes a few worse off. Selling the cheap drug therefore maximizes utility.

In most cases, of course, utilities are much harder to compare, or fairness issues complicate the picture. A generalization test can also be useful. A small chemical company undersells its competitors by releasing untreated pollutants into the air. One small factory has little effect on the atmosphere. But if all chemical companies were so lax, we would all suffocate. The act of pollution fails the generalization test.

There may be no one theory that explains all ethical phenomena (the same is true of physical science, after all). But more often the problem in practice is lack of factual information. The engineer must decide whether to speak up on the basis of incomplete data that suggest danger but do not prove it. This requires an existential decision that, almost by definition, cannot be given full rational justification at the time. The Challenger scenario required this sort of decision.

ETHICS AND POSITIVE ROLES OF CODE OF ETHICS:

Introduction:

One of the trade marks of contemporary professions is code of ethics. Codes of ethics are propagated by various professional societies. These codes of ethics are guidelines for specific groups of professionals to help them perform their roles; to know how to conduct themselves; and to know how to resolve around various ethical issues. These codes convey the rights, duties, and obligation of the members of the profession.

What is code of ethics?

- ✓ The primary aspects of codes of ethics are to provide the basic framework for ethical judgment for a professional.
- ✓ The codes of ethics are also referred to as the codes of conduct, express the commitment to ethical conduct shared by members of a profession.
- ✓ It expresses the ethical principles and standards in a coherent, comprehensive and accessible manner.
- ✓ It also defines the role and responsibility of profession.
- ✓ It helps the professionals to apply moral and ethical principles to the specific situations encountered in professional practice.
- ✓ These codes are based on five canons i.e., principle of ethics-integrity, competence, individual responsibility, professional responsibility, and human concerns.
- ✓ It also be noted that ethical codes do not establish new ethical principles. They use only those principles that are already well established and widely accepted in society.
- ✓ Thus the code of ethics creates an environment within a profession where ethical behavior is norm.

Positive Roles of Code of Ethics

The code of ethics propagated by professional societies play a vital role. They are,

1. Inspiration
2. Guidance
3. Support for responsible conduct
4. Deterring and disciplining unethical professional conduct
5. Educational and promotion of mutual understanding
6. Contributing to positive public image of profession
7. Protecting the status quo suppressing dissent within the profession and
8. Promoting business interest through restraint of trade.

Limitation of codes:

The four major limitations of codes of ethics are as follows:

1. Codes of ethics are broad guidelines, restricted to general and vague wordings/phrases. The codes cannot be applied directly to all situations. Also it is impossible to predict all aspects of moral problems that can arise in a complex, dynamic engineering profession.
2. Engineering codes often have internal conflicts, which may result in moral dilemmas. That is, several entries in codes overlap with each other, so there are internal conflicts. But the code doesn't provide a method for resolving these conflicts.
3. The codes cannot serves as the final moral authority for professional conduct.
4. The proliferation of codes of ethics for different of engineering gives a feeling that ethical code is relative.

Intellectual Property

Because engineers are essentially designers, they create little else than intellectual property. It is important that they understand the concept and the issues surrounding it. In addition, the rapid development of biological and information technology has forced a rethinking of intellectual property law and ethics.

What Is Intellectual Property?

In the narrow legal sense, intellectual property is a patented invention, a trade secret, or copyrighted material. A patent grants an inventor exclusive rights to an invention for 17 years in exchange for disclosing it to the public. One cannot patent (or copyright) a pure idea, such as a mathematical theorem. The invention must be some product or process that embodies an idea. United States law defines it to be a method, product, apparatus, composition of matter, design for articles of commerce, or in certain cases a plant. The disclosure must be specific enough to allow a person skilled in the art to recreate and use the invention. To be patented, the invention must be useful, novel, and unobvious. It is “novel” if (a) it was not known or used in the United States prior to the patent application, (b) it was not patented or described in a publication anywhere in the world more than a year prior to the patent application.

The invention is “unobvious” if the idea was not obvious to a person skilled in the art at the time of the invention. One cannot patent a “way of doing business” or anything that occurs in nature. A trade secret is a secret formula, pattern, or device that is used in a business and provides a commercial advantage. A trade secret can be bought, sold and licensed. It differs from a patented invention primarily in two ways. (a) A trade secret remains intellectual property forever (not just 17 years), or until the secret gets out. An example is the formula for Coca-Cola. (b) While the law prohibits others from using a patented idea, it only prohibits others from stealing a trade secret. It is perfectly legal for another company to conceive the idea independently and use it. Reverse engineering is not theft of a trade secret, because an idea deducible by reverse engineering is not really secret. It is illegal, however, to obtain and use a secret idea from its owner without permission. This is a tort known as misappropriation of intellectual property. It is also a crime by Federal and some state statutes. A copyright limits the number of copies others can make of a document or work of art without permission. It lasts much longer than a patent. A copyright held by an individual, for example, lasts 50 years beyond his or her lifetime. Ideas as such cannot be copyrighted and can therefore be discussed freely. Only a particular expression of ideas can be copyrighted. Software (source code or machine code) can be copyrighted, and recent law recognizes patents as well.

Social and Ethical Responsibilities of Technologists

In the following, diagrams illustrating hierarchical models of different types of responsibility are presented; the respective levels or strata refer to different dimensions of interpretation. They should be considered analytically helpful

differentiations of an 'ideal typ(ic)al' prevalence similar but not identical to Max Weber's .. ideal types' ('Idealtypen'). These general diagrams are to be considered on different levels: For example, the first diagram of action responsibility versus the other ones which are themselves alternatives on the same level (e. g., types are Paratactical and mostly disjunct, subordinate, interpretative constructs on the same level, whereas the levels are hierarchically organised). That means that the upper stratum is more abstract and must be substantiated by subordinated, more concrete interpretative constructs, e. g., kinds of responsibility). In general, the levels are analytical and perspectivistic constructs that may overlap and apply to a real case of responsibility instantiation which can be analyzed either from a rather formal, abstract, and overall interactional or 'causal' perspective or on a more concrete level of role, legal, or moral interpretation. That is, concrete instances of responsibility attribution can be analyzed not only on a formal or abstract level (as in the first diagram), but also from a lower level, from a more concrete point of view, namely from the perspective of moral, legal, or role responsibility. Although usually one and the same analysis on a specific level is fixed to a certain interpretation, say, the legal one, this does not preclude another interpretation from a moral point of view, i. e. another general type structure. Within the rather concrete level of these schematic constructs, the different individual types are also analytic constructs which may sometimes be attributed more or less. (E. g. within the diagram of universal moral responsibility, the higher level responsibility to keep the Fifth Commandment would also apply, for example, when a doctor must make a decision in an intensive care unit concerning the reasonableness of a measure to be taken for the welfare of a patient under consideration of practical humanity; both the direct responsibility for life and limb of the respective person and the formally higher responsibility of medical ethics as well as general ethics come into play.) Even in the lower parts of the rather concrete type diagrams in the lower level of analysis, constructs are to be understood as analytical distinctions: e. g. collective or group responsibility usually does not preclude individual or personal responsibility which might also be present, although collective responsibility cannot be analytically reduced to or derived from individual or personal responsibility alone. The same applies to institutional responsibility. Furthermore, there are conceptual connections or 'analytical relations' between side-by-side or subordinated subtypes

The most obvious and general level at which one can describe responsibility is referring to one's being responsible for the results and consequences of one's own actions. We may call this the level of the analysis of prototypical (causally

oriented) action responsibility. An agent is to be held responsible for the outcomes of his or her actions in an instance for which he or she is accountable. An engineer designing a bridge or a dam is responsible to the supervisor, employer, client and/or general public for his or her design in terms of technical correctness, safety, cost, feasibility, etc. Frequently, accountability questions are raised in negative cases, when one or more of these criteria are not fulfilled. The breaking of a dam may be the result of wrong statics calculations, carelessness, negligent, or even criminal work, poor craftsmanship or using cheap material. Therefore, it is important to emphasize negative action responsibility. Professionals, for example, have a responsibility to the public to ensure high standards in their work and to avoid risks of disasters as far as possible at a reasonable cost. The responsibility to avoid mistakes, failures, poor quality of work, etc. is part and parcel of action responsibility.

Whistle-Blowing

If an engineer decides that current practice is unethical, there are at least three basic responses: (a) "blow the whistle," either internally or publicly, (b) resign, or (c) keep quiet and do what the company wants. There is a considerable literature on whistleblowing because it touches on a fundamental issue of employment: what, if anything, is the employee's duty to the firm? What exactly is employment, and how do an employee's obligations differ from those of someone working on contract? Two good case studies in this area are the Goodrich aircraft brake scandal (Vandivier, 1972) and the Challenger disaster mentioned earlier. Two popular articles are those by Bok (1980) and Duska (1997). Although prudential issues must be distinguished from ethical ones, this literature makes clear that the would-be whistleblower must think carefully before acting. Whistleblowers often pay a substantial price, and their effectiveness is uneven. The employee who would resign to avoid unethical conduct must also consider the duties of employees. Arguably, employment is indistinguishable from any other sort of work-for-hire unless it implies some degree of commitment, albeit both employers and employees often renege on their commitments. One can ask whether a company should immediately fire an employee who behaves unethically, or whether it should try to correct the behavior and give the employee a second chance. One can also ask the same question of the employee.

- Module: 5. Self Development: Character strengths and virtues, Emotional Intelligence, Social intelligence, Positive cognitive states and processes (Self-efficacy, Empathy, Gratitude, Compassion, and Forgiveness).

Self Development: Character strengths and virtues:

The emergence of the field of positive psychology at the turn of the 21st century presents an insight into the future direction of the science and practice of psychology. While psychology has generally concerned itself with healing- with fixing what is wrong or malfunctioning with individuals-, a number of psychologists have argued that equal emphasis should be placed on the factors contributing to healthy human functioning.¹ This new field, which is now at the cutting edge of psychological research, has as its goal the creation of “a psychology of positive human functioning...that achieves a scientific understanding and effective interventions to build thriving individuals, families and communities.”

Virtues are defined as the central characteristics that have been valued moral philosophers and religious thinkers worldwide. Six central virtues were defined following extensive historical studies: wisdom, courage, humanity, justice, temperance, and transcendence. In this account, virtues are seen as universal traits possibly grounded in biology through an evolutionary process that selects the best traits for solving the most important tasks at hand.

Character strengths are the means that one may employ to exhibit a particular virtue. While each of these strengths requires the acquisition and use of knowledge, and are intimately (though not exclusively) connected with a particular virtue, they are distinct from one another. Generally, a virtuous individual would only exhibit one or two strengths from a particular virtue group. 24 distinct strengths have been thus far identified, although this number is very much a provisional one; the VIA (Values in Action) projects envisages having a near-exhaustive list in the near future. These strengths were also derived from extensive cross-cultural and historical investigations, and repeated reductions of larger trait lists. The 24 selected were deemed to have satisfied most of the following ten criteria:

1. A strength contributes to various fulfillments that constitute the good life, for oneself and for others. Although strengths and virtues determine how an individual copes with adversity, the focus is on how they fulfill an individual.
2. Although strengths can and do produce desirable outcomes, each strength is morally valued in its own right, even in the absence of obvious beneficial outcomes.
3. The display of a strength by one person does not diminish other people in the vicinity
4. Being able to phrase the “opposite” of a putative strength in a felicitous way counts against regarding it as a character strength.
5. A strength needs to be manifest in the range of an individual’s behavior-thoughts, feelings, and/or actions- in such a way that it can be assessed. It should be trait-like in the sense of having a degree of generality across situations and stability across time.
6. The strength is distinct from other positive traits in the classification and cannot be decomposed into them.
7. A character strength is embodied in consensual paragons.

8. This feature probably cannot be applied to all strengths, but an additional criteria where sensible is the existence of prodigies with respect to the strength.

9. Conversely, another criterion for a character strength is the existence of people who shows electively- the total absence of a given strength.

10. The larger society provides institutions and associated rituals for cultivating strengths and virtues and then for sustaining their practice.

With these criteria in mind, the 24 strengths were identified and classified under their respective virtues as follows:

1. Wisdom and knowledge

- Creativity
- Curiosity
- Open-mindedness
- Love of learning
- Perspective

2. Courage

- Bravery
- Persistence
- Integrity
- Vitality

3. Humanity

- Love
- Kindness
- Social Intelligence

4. Justice

- Citizenship
- Fairness

- Leadership

5. Temperance

- Forgiveness and mercy
- Humility/ Modesty
- Prudence
- Self-regulation

6. Transcendence

- Appreciation of beauty and excellence
- Gratitude
- Hope
- Humor
- Spirituality

- Emotional Intelligence:

Emotional intelligence describes the ability, capacity, skill, or self-perceived ability to identify, assess, and manage the emotions of one's self, of others, and of groups. People who possess a high degree of emotional intelligence know themselves very well and are also able to sense the emotions of others. They are affable, resilient, and optimistic.

- Benefits

By developing their emotional intelligence individuals can become more productive and successful at what they do, and help others become more productive and successful too. The process and outcomes of emotional intelligence development also contain many elements known to reduce stress—for individuals and therefore organizations—by moderating conflict; promoting understanding and relationships; and fostering stability, continuity, and harmony. Last but not least, it links strongly with concepts of love and spirituality.

In the most generic framework, five domains of emotional intelligence cover together personal (self-awareness, self-regulation, and self-motivation) and social (social awareness and social skills) competences. They are:

- Self-Awareness

- (i) Emotional awareness: Recognizing one's emotions and their effects.
- (ii) Accurate self-assessment: Knowing one's strengths and limits.
- (iii) Self-confidence: Sureness about one's self-worth and capabilities.

- Self-Regulation

- (i) Self-control: Managing disruptive emotions and impulses.
- (ii) Trustworthiness: Maintaining standards of honesty and integrity.
- (iii) Conscientiousness: Taking responsibility for personal performance.
- (iv) Adaptability: Flexibility in handling change.
- (v) Innovativeness: Being comfortable with and open to novel ideas and new information.

- Self-Motivation

- (i) Achievement drive: Striving to improve or meet a standard of excellence.
- (ii) Commitment: Aligning with the goals of the group or organization.
- (iii) Initiative: Readiness to act on opportunities.
- (iv) Optimism: Persistence in pursuing goals despite obstacles and setbacks.

- Social Awareness

- (i) Empathy: Sensing others' feelings and perspective, and taking an active interest in their concerns.
- (ii) Service orientation: Anticipating, recognizing, and meeting customers' needs.
- (iii) Developing others: Sensing what others need in order to develop, and bolstering their abilities.
- (iv) Leveraging diversity: Cultivating opportunities through diverse people.

(v) Political awareness: Reading a group's emotional currents and power relationships.

- Social Skills

(i) Influence: Wielding effective tactics for persuasion.

(ii) Communication: Sending clear and convincing messages.

(iii) Leadership: Inspiring and guiding groups and people.

(iv) Change catalyst: Initiating or managing change.

(v) Conflict management: Negotiating and resolving disagreements.

(vi) Building bonds: Nurturing instrumental relationships.

(vii) Collaboration and cooperation: Working with others toward shared goals.

(viii) Team capabilities: Creating group synergy in pursuing collective goals.

- Social intelligence

Social intelligence can be defined as the human ability of decoding the happenings of the world and responding to it likewise. This ability is exclusive to humans and distinguishes us from the rest of beings in the animal kingdom.

Social Intelligence is also the capability to act wisely while maintaining human relations. It is markedly different from just intelligence, unlike what people used to think earlier. Over the years, it has been observed that many exceptionally intelligent people struggle a lot while maintaining a social life.

An immediate example that springs to the mind is that of Kim Peek, whose life had inspired the hit movie Rain Man. Peek had an exceptionally sharp memory that allowed him to literally scan through books reading two pages at a time, with his left eye reading the left page and the right eye going through the right page simultaneously. This technique allowed him to browse through books at incredible speeds and what he read, he remembered permanently. Last checked, he was about to recall paragraphs from over 12,000 books. However, he was socially inept and avoided human interaction for a major part of his life. His communication was, for the most part, limited to his father.

Importance of Social Intelligence

Industry experts have confirmed that thousands of employees have recently lost their jobs due to their lack of social incompetence. Earlier, talented people thought they only have to be good at their jobs to guarantee their place in a company. However, the recent change in business approach has made all these employees rethink their style of working. They now realize that they can't be employees in desk-jobs, and have to start taking a larger interest and part in the improvement and growth of the organization.

Technology has made people self-centered, in the sense that people might be interacting with people online happily, but the same people will be ignoring those sitting beside them. This boundary that people have drawn around them makes them look isolated and uninterested in any real-world communication, making the lack of human communication and relationships a pressing problem of our times. It is no surprise then that people having better social skills have more friends, are in more relationships, and know how to nurture a relationship. This leads them to have successful careers and generally happier lives.

- Positive cognitive states and processes

- Self-Efficacy

Self-efficacy is the core aspect of Bandura's social cognitive theory. Bandura (1995) defined self-efficacy as 'the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations'. Self-efficacy involves the belief that one can effectively perform certain actions.

Our efficacy beliefs determine our expectations about the outcomes of our actions and this in turn determines our behavioral performance. People's beliefs in their capabilities to obtain desired outcomes are very important as they determine the types of behaviors people will undertake and how much efforts they will put in. A related construct is Perceived Self-Efficacy which is the belief that one can perform difficult tasks and cope with failures. Perceived self-efficacy helps in setting of goals, putting of effort, persistence and recovery from failures. Self-efficacy is usually treated as domain specific. But recently some researchers have also conceptualized a generalized sense of self-efficacy across a wide range of situations. There is a positive relationship between general self-efficacy and specific self-efficacy.

According to Bandura (1995), individuals possess a self-system through which they exercise control over their thoughts, feelings, and actions. The self-system

is made up of cognitive and affective structures which are involved in perceiving, regulating, and evaluating behavior. Self-efficacy makes a difference in people's feelings, thoughts and action. Low self efficacy is related with depression, and anxiety while high self-efficacy leads to accomplishments, reduces stress, and enhances well-being. A person with strong self-efficacy beliefs is able to lead a more self-determined life; consider difficult tasks as challenges and not as threats. Self-efficacy influences the level of stress one experiences while dealing with difficult circumstances. It also determines one's level of accomplishments; level of effort and whether one's thoughts are positive or negative.

Sources of self-efficacy

According to Bandura (1997), there are four major sources of self-efficacy beliefs:

- **Mastery experiences:**

Mastery experiences are the most effective way of creating a high level of efficacy. Successes help in building strong self-efficacy beliefs whereas failures undermine it. High self-efficacy beliefs come from past experiences of success.

- **Vicarious experiences:**

Self-efficacy beliefs also develop by learning from the experiences of other people. Exposure to successful role models helps in enhancing self-efficacy. Competent models display effective skills through their behavior. Perceived similarity to the models influences the effect of modeling on self-efficacy. If the assumed similarity is more, the more influence the models' successes and failures will have on the person. When people observe the successes of others it enhances their self-efficacy beliefs required for attaining success.

Verbal persuasion:

Another way of strengthening self-efficacy beliefs is through verbal persuasion. A person who is persuaded that he/she possesses the capabilities required to perform given tasks is more likely to put in greater effort as compared to one who has self-doubts. Social persuasion motivates people to try hard to succeed in the task. A person's self-efficacy is increased when he/she is encouraged by others that he/she is capable of successfully completing a task. Guidance from others helps in correcting one's performance.

Physiological/emotional states:

Emotional arousal also influences self-efficacy. High negative emotional arousal may interfere with performance, whereas positive emotional arousal can enhance performance. Mood also affects people's judgments of their self-efficacy. Positive mood enhances self-efficacy, whereas negative mood diminishes it.

Imaginal Experiences:

Apart from the four sources mentioned above, Maddux (1995) introduced imaginal experiences as another source of self-efficacy. He suggested that self-efficacy beliefs can be developed by imagining oneself behaving in hypothetical situations. These images may be derived from actual or vicarious experiences. They may also be developed by verbal persuasion in systematic desensitization and covert modeling. Imaginal modeling has been used successfully in interventions to enhance assertive behaviors (Kazdin, 1979).

Efficacy-activated processes

Self-efficacy beliefs affect functioning through four major psychological processes (Bandura, 1992). They are as follows:

Cognitive Processes:

Most human behavior is determined by one's cognitions like thinking, decision making reasoning etc. Setting goals for oneself is influenced by how one appraises his/ her capabilities. People with strong self-efficacy beliefs set higher goal challenges for themselves and are more committed to achieving them. Self-efficacy beliefs also influence the expectations of people. People with strong self-efficacy beliefs, visualize success scenarios while those with low self-efficacy visualize failure scenarios. Remaining task oriented during stressful situations is also affected by self-efficacy beliefs

Motivational Processes:

Self-efficacy beliefs help in regulating one's motivation. People form beliefs about what they can do. There are three different forms of cognitive motivators: causal attributions, outcome expectancies, and goals and self-efficacy beliefs play a role in each of these. Causal attributions affect motivation, and performance through self-efficacy beliefs. In expectancy-value theory, motivation is regulated by the expectation that a certain action will lead to certain outcomes. Self-efficacy beliefs determine the goals people set for themselves and the effort invested.

Affective Processes:

People's beliefs in their coping capabilities influences how much stress they may experience. Self-efficacy to exercise control over stressful situations plays an important role in anxiety arousal. Stronger the self-efficacy beliefs about self-regulation, the more successful the person is in taking up health promoting behaviors.

Selection Processes:

Self-efficacy beliefs influence one's life course by affecting the types of activities and environments people select for themselves. Any factor that affects choice behaviors has a huge impact on personal development. This is because the person will choose activities and environments which further enhance his development. In career choice and development too self-efficacy beliefs influence the course of life through the choices that one makes. When self-efficacy is high, the range of career options a person considers becomes high and it leads to greater interest in career options. Due to this there is better preparation for the attainment of the goal thereby leading to success.

Forgiveness

Forgiveness has been defined in a multitude of ways. The specific aspect of forgiveness that is focused on can often be used to classify these definitions. For instance, some definitions focus on dispositions toward forgiveness (Berry et al. 2005; Brown 2003; Thompson et al. 2005), while others focus on occasion- or relationship-specific unforgiving motivations (McCullough et al. 1998). Still other ways of defining forgiveness have taken a more taxonomic approach and consider a broad array of targets and types of forgiveness (Toussaint and Webb 2005). The Foundation for Inner Peace (1975), Jampolsky (1979, 1999) and Friedman (1989, 2000) use seven criteria for defining forgiveness: (a) a shift in perception and vision, (b) a shift in beliefs and attitudes, (c) a shift in affects, (d) a shift in self-empowerment and self-responsibility, (e) a shift in choice, decision and intention, (f) a shift from duality consciousness to oneness consciousness, and (g) a shift in the recognition of the core qualities of a person. From this perspective forgiveness occurs when a person lets go of emotionally backed judgments, grievances, attack thoughts and beliefs toward themselves and others so that they can perceive the goodness, worth, magnificence, innocence, love, and peace in both themselves and another person simultaneously. Moreover, from this point of view the forgiveness process is activated when a person makes a conscious choice/decision to forgive (see things differently) and then turns the forgiveness

process over to a higher power/Self (e.g. the Holy Spirit). During this process projections are owned and released and peace and love are set as goals. Recently, Worthington and Scherer (2004) have somewhat echoed the Foundation for Inner Peace, Jampolsky, and Friedman and distinguished between emotional and decisional forgiveness. Emotional forgiveness is rooted in a subset of negative emotions including but not limited to: resentment, bitterness, hostility, hatred, etc. According to Worthington and his colleagues (Worthington and Wade 1999; Worthington et al. 2001) forgiveness acts through the displacement of unforgiveness or the “contamination” of unforgiveness with forgiveness or positive, pro-social, love-based emotions. Decisional forgiveness, on the other hand, is based in one’s beliefs about future interactions with a transgressor. Worthington and Scherer point out that emotional and decisional forgiveness may go hand-in-hand or may diverge in interesting ways. For instance, while decisional forgiveness might often precede emotional forgiveness and actually facilitate it, this does not have to always be the case.

Gratitude

Gratitude has been no less of a challenge than forgiveness to define. McCullough et al. (2002) initially defined the disposition toward gratitude “as a generalized tendency to recognize and respond with grateful emotion to the roles of other people’s benevolence in the positive experiences and outcomes that one obtains” (p. 112). Later, Emmons and McCullough (2003) noted broader conceptualizations of gratitude as “an emotion, an attitude, a moral virtue, a habit, a personality trait, or a coping response” (p. 377). Consistent with this broader conceptualization, Emmons and McCullough also noted that gratitude has cognitive and emotional components. Watkins et al. (2003) have chosen to focus on grateful traits and define the grateful disposition as one that predisposes an individual to experience this state. Watkins et al. define grateful affect as Guralnik (1971) does which is “a feeling of thankful appreciation for favors received” (p. 327). Though Watkins et al. agree with Guralnik’s definition, they further identify four key characteristics of grateful persons. First, grateful individuals feel a sense of abundance. Second, grateful individuals appreciate contributions of others to their well-being. Third, grateful individuals appreciate the simple pleasures of life—those readily available to most people. Fourth, grateful individuals recognize the importance of experiencing and expressing gratitude.

Friedman (1989, 2000) defines gratitude as being thankful for:

- (a) people, situations, and circumstances in life,
- (b) what you have received, experienced, and learned,
- (c) spiritual source/resources within,
- (d) abundance within, (e) what you give and forgive,
- (f) your inner qualities, and (g) future positive experiences, prosperity, and blessings.

The Foundation for Inner Peace (1975) defines gratitude similarly to much of the above but emphasizes that it is unnecessary for the grateful person to experience anything external from another person in order to feel thankful/grateful or even blessed. We generally agree with these approaches to defining gratitude and have formerly defined gratitude (Friedman and Toussaint 2006b) in a way that focuses on the inner emotional experience and the cognitive-attitudinal belief set.

- Empathy :

Empathy is not a recent concept of interest in psychology, but its effect on forgiveness has sparked new consideration. Empathy is “the intellectual identification with or vicarious experiencing of the feelings, thoughts, or attitudes of another” (www.dictionary.com). Empathy is also defined as the desire to increase another person’s personal welfare before consideration of one’s own [1-3]. It is believed that Forgiveness of another can occur because of an empathic response to the other person. The purpose of this study, therefore, is to examine the influence of empathy on the process of forgiveness. Numerous variables contribute to forgiveness, but the focus of this review is on the role of empathy in the forgiveness process.

When one is hurt or offended, several variables affect one’s reaction:

- a) whether the offender is a stranger, a friend, or a loved one;
- b) the strength of the relationship;
- c) the severity of the offense; and d) the previous experience of a similar transgression .

Thus, forgiveness is affected by contextual and person-specific factors. Both the offending partner and the offended partner can influence the likelihood that

forgiveness will be achieved. The empathic response of an offended person in relation to a transgression may be pivotal in the overall process of forgiveness. Empathy is also considered relevant (and sometimes vital) in the ability to continue to forgive, after the initial resolution.

Compassion :

It is quite natural that a human being defined as a social creature experiences troubles and conflicts in her/his relations with others. Due to relevant troubles and conflicts, sometimes s/he hurts other people and sometimes is hurt by others. It is quite possible to come across too much information on what kind of incompatible reactions will be given when an individual was hurt, such as anger, revenge seeking, and also how these reactions are being processed. Yet, the studies on what will be the positive reactions in case of a same situation are very limited [7]. Until the beginning of twentieth century, researchers studying psychology had investigated negative emotions such as depression, anxiety, but did not pay adequate attention to studies related to positive emotions. However, from the mid-1980s, the studies investigating how individuals can get benefit of their positive qualifications have risen with the momentum of the positive psychology. Forgiveness, which is accepted as a concept that can lead to positive emotions in “to hurt-to be hurt” cases in interpersonal relationships, has begun to be examined in this context in the recent 30 years.

According to researches, conducted on this topic, forgiveness plays a significant role in coping with negative feelings emerged after having problems and conflicts. For the person whose heart was broken, being able to forgive the offender is deeply related to realizing what the forgiveness is and what is not, and after that, it is related to being aware of the benefits of forgiving someone. Forgiveness is clarified as leaving negative emotions willingly such as anger, negative assessment, and on the other hand, it is described as promoting positive feelings such as love, mercy which are in fact undeserved by the one who harms unjustly. Nowadays, to understand the concept of forgiveness, some certain theoretical models have been put forward. These models are generally drawing attention forgiveness is a necessity for psychological health. According to Forgiveness Model of Enright et al., forgiveness is a healthy process which helps individuals to overcome some emotions such as anger, disappointment and revenge. According to the Pyramid Model of Worthington teaching clients to forgive others' faults is an important approach for them to struggle negative emotions and thoughts, to maintain situation of well-being and also to fix social relationships. Although each of these

forgiveness models adopts an authentic approach on forgiveness, they have also some similar aspects. In terms of the researches which these models were tested in, if we look at those similarities generally, we can see that forgiveness has a negative relationship with some concepts such as pain, feeling of anger, aggression, rumination and perfectionism, but on the other side, it has a positive relationship with other concepts such as psychological health, reconciliation with offender, emphatic conception and giving up negative feelings.

Giving up negative emotions, which is one of the notions related positively with forgiveness, can only be doable when individuals endeavor to relax themselves, to become tranquilized and to get rid of these negative feelings without doing any harm themselves. In order to be able to get rid of these negative emotions and to make life more loveable and understandable, individuals needs to acquire a high level of self-compassion. Therefore, coping with negative feelings will be easier for individuals who have high level of self-compassion. Self-compassion can be defined as individual's treating her/himself conscientious and indulgent, instead of being rough, under negative circumstances, accepting negative incidents as a part of normal human life and developing a rational approach instead of focusing on negative aspects [46]. According to researches, it is found that self-compassion promotes psychological health and has a sedative effect against negative incidents occurred in life time [27]. The studies conducted by using the scale of self-compassion revealed that there is a negative relationship among forgiveness and depression, self-criticism, neuroticism, anxiety. However self-compassion is a positive relationship with several traits of psychological well-being such as self-acceptance, life satisfaction, self-respect, happiness and optimism

The action of leaving of negative feelings, which brings individuals through to forgiveness process, is observed more individuals who have high level of self-compassion, but not people who have tendency to rumination generally. The concept of rumination is defined as individual's thinking about negative mood, its symptoms, its probable reasons and its consequences, but never getting into action to solve that problem . These people, in fact, are isolating themselves, always focusing on their own problems and negative moods created by these problems, since therefore; they believe that they are trying to find a way out. Actually, they may find some certain solutions, however they are not able to put in place these solutions. Therefore, individuals who have ruminative tendency focus on negative aspects of incidents more than others and live its consequences much longer. Being engaged consistently with these

thoughts and emotions related to the offense causes to negative feelings persist. Besides, it is claimed that ruminative thinking has an important role in maintaining anger and revenge feelings, and thereby, failing in emotionally forgiving the other person [6]. When the literature is examined, it is seen that the concept of rumination which generally involves negative features is related negatively with some variables such as empathy, life satisfaction and problem solving [70]; and positively with anger, ineffective coping [63], aggressive behavior, experiential avoidance [50] and depression. The concept of rumination about an interpersonal offense, which is adopted by this study, is defined and conceptualized by Wade et al. Rumination of interpersonal offense is clarified as repetitive thoughts accompanied with negative feelings against the person supposed to be the offender as a result of interpersonal offense, for instance being hard done by someone or suffered because of her/him.

Module: 6.Effects of Technological Growth:

Rapid Technological growth and depletion of resources, Reports of the Club of Rome. Limits of growth: sustainable development Energy Crisis: Renewable Energy Resources, Environmental degradation and pollution. Eco-friendly Technologies. Environmental Regulations, Environmental Ethics. Appropriate Technology, Movement of Schumacher; Problems of man, machine, interaction.

The signs are everywhere around us: • Sea level has risen 10–20 cm since 1900. Most non-polar glaciers are retreating, and the extent and thickness of Arctic sea ice is decreasing in summer.

- In 1998 more than 45 percent of the globe's people had to live on incomes averaging \$2 a day or less. Meanwhile, the richest onefifth of the world's population has 85 percent of the global GNP. And the gap between rich and poor is widening.

- In 2002, the Food and Agriculture Organization of the UN estimated that 75 percent of the world's oceanic fisheries were fished at or beyond capacity. The North Atlantic cod fishery, fished sustainably for hundreds of years, has collapsed, and the species may have been pushed to biological extinction.

- The first global assessment of soil loss, based on studies of hundreds of experts, found that 38 percent, or nearly 1.4 billion acres, of currently used agricultural land has been degraded.

- Fifty-four nations experienced declines in per capita GDP for more than a decade during the period 1990–2001.

These are symptoms of a world in overshoot, where we are drawing on the world's resources faster than they can be restored, and we are releasing wastes and pollutants faster than the Earth can absorb them or render them harmless. They are leading us toward global environmental and economic collapse—but there may still be time to address these problems and soften their impact.

The earth's interlocking resources – the global system of nature in which we all live – probably cannot support present rates of economic and population growth much beyond the year 2100, if that long, even with advanced technology. In the summer of 1970, an international team of researchers at the Massachusetts Institute of Technology began a study of the implications of continued worldwide growth. They examined the five basic factors that determine and, in their interactions, ultimately limit growth on this planet: population increase, agricultural production, nonrenewable resource depletion, industrial output, and pollution generation. The MIT team fed data on these five factors into a global computer model and then tested the behavior of the model under several sets of assumptions to determine alternative patterns for mankind's future. *The Limits to Growth* is the nontechnical report of their findings. The book contains a message of hope, as well: Man can create a society in which he can live indefinitely on earth if he imposes limits on himself

and his production of material goods to achieve a state of global equilibrium with population and production in carefully selected balance.

More than 30 years ago, a book called *The Limits to Growth* created an international sensation. Commissioned by the Club of Rome, an international group of businessmen, statesmen, and scientists, *The Limits to Growth* was compiled by a team of experts from the U.S. and several foreign countries. Using system dynamics theory and a computer model called “World3,” the book presented and analyzed 12 scenarios that showed different possible patterns—and environmental outcomes—of world development over two centuries from 1900 to 2100.

The World3 scenarios showed how population growth and natural resource use interacted to impose limits to industrial growth, a novel and even controversial idea at the time. In 1972, however, the world’s population and economy were still comfortably within the planet’s carrying capacity. The team found that there was still room to grow safely while we could examine longer-term options. In 1992, this was no longer true. On the 20th anniversary of the publication of *Limits to Growth*, the team updated *Limits* in a book called *Beyond the Limits*. Already in the 1990s there was compelling evidence that humanity was moving deeper into unsustainable territory. *Beyond the Limits* argued that in many areas we had “overshot” our limits, or expanded our demands on the planet’s resources and sinks beyond what could be sustained over time.¹ The main challenge identified in *Beyond the Limits* was how to move the world back into sustainable territory.

While the past 30 years has shown some progress, including new technologies, new institutions, and a new awareness of environmental problems, the authors are far more pessimistic than they were in 1972. Humanity has squandered the opportunity to correct our current course over the last 30 years, they conclude, and much must change if the world is to avoid the serious consequences of overshoot in the 21st century.

When *The Limits to Growth* was first published in 1972, most economists, along with many industrialists, politicians, and Third World advocates raised their voices in outrage at the suggestion that population growth and material consumption need to be reduced by deliberate means.

Over the years, *Limits* was attacked by many who didn’t understand or misrepresented its assertions, dismissing it as Malthusian hyperbole. But nothing that has happened in the last 30 years has invalidated the book’s warnings. On the contrary, as noted energy economist Matthew Simmons

recently wrote, “The most amazing aspect of the book is how accurate many of the basic trend extrapolations ... still are some 30 years later.” For example, the gap between rich and poor has only grown wider in the past three decades.

Thirty years ago, it seemed unimaginable that humanity could expand its numbers and economy enough to alter the Earth’s natural systems. But experience with the global climate system and the stratospheric ozone layer have proved them wrong. Since *The Limits to Growth* was first published 30 years ago, these problems have been the focus of conferences, scientific research, and media scrutiny. What makes *Limits to Growth: The 30-Year Update* unique, however, is that it presents the underlying economic structure that leads to these problems. Moreover, *Limits* is a valuable reference and compilation of data. The authors include 80 tables and graphs that give a comprehensive, coherent view of many problems. The book will undoubtedly be used as a text in many courses at the college level, as its two earlier versions have been

THE DRIVING FORCE: EXPONENTIAL GROWTH

For more than a century, the world has been experiencing exponential growth in a number of areas, including population and industrial production. Positive feedback loops can reinforce and sustain exponential growth. In 1650, the world’s population had a doubling time of 240 years. By 1900, the doubling time was 100 years. When *The Limits to Growth* was published in 1972, there were under 4 billion people in the world. Today, there are more than 6 billion, and in 2000 we added the equivalent of nine New York cities.

Another area of exponential growth has been the world economy. From 1930 to 2000, the money value of world industrial output grew by a factor of 14—an average doubling time of 19 years. If population had been constant over that period, the material standard of living would have grown by a factor of 14 as well. Because of population growth, however, the average per capita output increased by only a factor of five. Moreover, in the current system, economic growth generally occurs in the already rich countries and flows disproportionately to the richest people within those countries. Thus, according to the United Nations Development Program, the 20 percent of the world’s people who lived in the wealthiest nations had 30 times the per capita income of the 20 percent who lived in the poorest nations. By 1995 the average income ratio between the richest and poorest 20 percent had increased from 30:1 to 82:1. Only eight percent of the world’s people own a car. Hundreds of millions of people live in inadequate houses or have no shelter at all—much less

refrigerators or television sets. Social arrangements common in many cultures systematically reward the privileged, and it is easier for rich populations to save, invest, and multiply their capital.

THE LIMITS Limits to growth include both the material and energy that are extracted from the Earth, and the capacity of the planet to absorb the pollutants that are generated as those materials and energy are used. Streams of material and energy flow from the planetary sources through the economic system to the planetary sinks where wastes and pollutants end up. There are limits, however, to the rates at which sources can produce these materials and energy without harm to people, the economy, or the earth's processes of regeneration and regulation. Resources can be renewable, like agricultural soils, or nonrenewable, like the world's oil resources. Both have their limits. The most obvious limit on food production is land. Millions of acres of cultivated land are being degraded by processes such as soil erosion and salinization, while the cultivated area remains roughly constant. Higher yields have compensated somewhat for this loss, but yields cannot be expected to increase indefinitely. Per capita grain production peaked in 1985 and has been trending down slowly ever since. Exponential growth has moved the world from land abundance to land scarcity. Within the last 35 years, the limits, especially of areas with the best soils, have been approached

Another limit to food production is water. In many countries, both developing and developed, current water use is often not sustainable. In an increasing number of the world's watersheds, limits have already been reached. In the U.S. the Midwestern Ogallallah aquifer in Kansas is overdrawn by 12 cubic kilometers each year. Its depletion has so far caused 2.46 million acres of farmland to be taken out of cultivation. In an increasing number of the world's watersheds, limits have already, indisputably, been exceeded. In some of the poorest and richest economies, per capita water withdrawals are going down because of environmental problems, rising costs, or scarcity. Another renewable resource is forests, which moderate climate, control floods, and harbor species, from rattan vines to dyes and sources of medicine. But today, only one-fifth of the planet's original forest cover remains in large tracts of undisturbed natural forests. Although forest cover in temperate areas is stable, tropical forest area is plummeting. From 1990 to 2000, the FAO reports that more than 370 million acres of forest cover—an area the size of Mexico—was converted to other uses. At the same time that forests decline, demand for forest products is growing. If the loss of 49 million acres per year, typical in the

1990s, continues to increase at 2 percent per year, the unprotected forest will be gone before the end of the century.

NON RENEWABLE RESOURCES

A prime example of a nonrenewable resource is fossil fuels, whose limits should be obvious, although many people, including distinguished economists, are in denial over this elementary fact. More than 80 percent of year 2000 commercial energy use comes from nonrenewable fossil fuels—oil, natural gas, and coal. The underground stocks of fossil fuels are going continuously and inexorably down. Between 1970 and 2000, even though billions of barrels of oil and trillions of cubic feet of natural gas were burned, the ratio of known reserves to production actually rose, due to the discovery of new reserves and reappraisal of old ones.

Nonetheless the stock of reserves is finite and nonrenewable. Moreover, fossil fuels use is limited by the planet's capacity to absorb their byproducts after burning, such as the greenhouse gas carbon dioxide. Fossil fuels may be limited by both supply and sinks. Peak gas production will certainly occur in the next 50 years; the peak for oil production will occur much sooner, probably within the next decade. Energy efficiency and renewables offer the best prospect for a sustainable future. Materials are another finite resource.

If population rises, and if those people are to have housing, health services, education, cars, refrigerators, and televisions, they will need steel, concrete, copper, aluminum, plastic, and many other materials. But if an eventual nine billion people on earth all consumed materials at the rate of the average American, world steel production would need to rise by a factor of five, copper by a factor of eight, and aluminum by a factor of nine. From source to sink, the processing, fabricating, handling, and use of materials leaves a trail of pollution. Such materials flows are neither possible nor necessary. Fortunately, growth in materials consumption has slowed, and the prospects for further slowing are good. The possibilities for recycling, greater efficiency, increased product lifetime, and source reduction in the world of materials are exciting.

On a global scale, however, they have not yet reduced the vast materials flow through the economy. At best, they have slowed its rate of growth. Another fundamental limit to growth is sinks—the capacity of the planet to absorb the pollution and waste resulting from human economic activity. The most intractable wastes are nuclear wastes, hazardous wastes (like human synthesized chemicals), and greenhouse gases. They are chemically the hardest

to sequester or detoxify, and economically and politically the most difficult to regulate.

Current atmospheric concentrations of carbon dioxide and methane are far higher than they have been in 160,000 years. It may take decades for the consequences of climate change to be revealed in melting ice, rising seas, changing currents, greater storms, shifting rainfall, and migrating insects, birds or mammals. It is also plausible that climate may change rapidly.

THE SUSTAINABLE SOCIETY

In 1987, the World Commission on Environment and Development put the idea of sustainability into these words:

A sustainable society is one that “meets the needs of the present without compromising the ability of future generations to meet their own needs.”

From a systems point of view, a sustainable society is one that has in place informational, social, and institutional mechanisms to keep in check the positive feedback loops that cause exponential population and capital growth. This means that birthrates roughly equal death rates, and investment rates roughly equal depreciation rates, unless or until technical change and social decisions justify a considered, limited change in the levels of population or capital.

Such a society, with a sustainable ecological footprint, would be almost unimaginably different from the one in which most people now live. Before we can elaborate on what sustainability could be, we need to start with what it need not be.

Sustainability does not mean zero growth. Rather, a sustainable society would be interested in qualitative development, not physical expansion. It would use material growth as a considered tool, not a perpetual mandate. Neither for nor against growth, it would begin to discriminate among kinds of growth and purposes for growth. It would ask what the growth is for, and who would benefit, and what it would cost, and how long it would last, and whether the growth could be accommodated by the sources and sinks of the earth.

A sustainable society would also not paralyze into permanence the current inequitable patterns of distribution. For both practical and moral reasons, a sustainable society must provide sufficiency and security for all. A sustainable society would not be a society of despondency and stagnation, unemployment and bankruptcy that current systems experience when their growth is

interrupted. A deliberate 22 • LIMITS TO GROWTH transition of sustainability would take place slowly enough, and with enough forewarning, so that people and businesses could find their places in the new economy.

A sustainable world would also not be a rigid one, with population or production or anything else held pathologically constant. One of the strangest assumptions of present-day mental models is the idea that a world of moderation must be one of strict, centralized government control. A sustainable world would need rules, laws, standards, boundaries, social agreements and social constraints, of course, but rules for sustainability would be put into place not to destroy freedoms, but to create freedoms or protect them.

Some people think that a sustainable society would have to stop using nonrenewable resources. But that is an over-rigid interpretation of what it means to be sustainable. Certainly a sustainable society would use nonrenewable gifts from the earth's crust more thoughtfully and efficiently

Suggested Guidelines

The authors do suggest a few general guidelines for what sustainability would look like, and what steps we should take to get there:

- Extend the planning horizon. Base the choice among current options much more on their long-term costs and benefits.
- Improve the signals. Learn more about the real welfare of human population and the real impact on the world ecosystem of human activity.
- Speed up response time. Look actively for signals that indicate when the environment or society is stressed. Decide in advance what to do if problems appear.
- Minimize the use of nonrenewable resources.
- Prevent the erosion of renewable resources. • Use all resources with maximum efficiency.
- Slow and eventually stop exponential growth of population and physical capital

The necessity of taking the industrial world to its next stage of evolution is not a disaster—it is an amazing opportunity. How to seize the opportunity, how to bring into being a world that is not only sustainable, functional, and equitable but also deeply desirable is a question of leadership and ethics and vision and courage, properties not of computer models but of the human heart and soul.

- The Club of Rome Climate Emergency Plan calls for 10 priority actions:

1. Halt fossil fuel expansion and fossil fuel subsidies by 2020:

No new investments in coal, oil and gas exploration and development after 2020 and a phase-out of the existing fossil fuel industry by 2050. Phase-out of fossil fuel subsidies by 2020.

2. Triple annual investments in renewable energy, energy efficiency and low carbon technologies for high emitting sectors before 2025:

Give priority to developing countries to avoid lock-in to the carbon economy.

3. Put a price on carbon to reflect the true cost of fossil fuel use and embedded carbon by 2020:

Introduce carbon floor prices. Tax embedded carbon through targeted consumption taxes. Direct tax revenues to research, development and innovation for low-carbon solutions, cutting other taxes or supporting the welfare state.

4. Replace GDP growth as the main objective for societal progress:

Replace GDP growth as the main objective for societal progress and adopt new indicators that accurately measure welfare and wellbeing rather than production growth.

5. Improve refrigerant management by 2020.

Adopt ambitious standards and policy to control leakages of refrigerants from existing appliances through better management practices and recovery, recycling, and destruction of refrigerants at the end of life.

6. Encourage exponential technology development by 2020:

Create an International Task Force to explore alignment of exponential technologies and business models with the Paris Agreement to promote technology disruption in sectors where carbon emissions have been difficult to eliminate.

7. Ensure greater materials efficiency and circularity by 2025:

Significantly reduce the impact of basic materials e.g. steel, cement, aluminum and plastics from almost 20% of global carbon emissions today by the early introduction of innovation, materials substitution, energy efficiency, renewable energy supply and circular material flows.

8. Accelerate regenerative land use policies and adaptation:

Triple annual investments in large-scale REDD+ reforestation and estuarine marshland initiatives in developing countries. Compensate farmers for building carbon in the soils and promote forestry sequestration. Support efforts to restore degraded lands. Implement adaptive risk management procedures in every state, industry, city or community.

9. Ensure that population growth is kept under control by giving priority to education and health services for girls and women.

Promote reproductive health and rights, including family planning programmes.

10. Provide for a just transition in all affected communities:

Establish funding and re-training programmes for displaced workers and communities. Provide assistance in the diversification of higher carbon industries to lower carbon production. Call upon the top 10% earners of the world to cut their GHG emissions by half till 2030.

Appropriate Technology Movement of Schumacher; later developments

Appropriate technology is an ideological movement (and its manifestations) encompassing technological choice and application that is small-scale, decentralized, labor-intensive, energyefficient, environmentally sound, and locally autonomous. It was originally articulated as intermediate technology by the economist Dr. Ernst Friedrich "Fritz" Schumacher in his work *Small is Beautiful*. Both Schumacher and many modern-day proponents of appropriate technology also emphasize the technology as people-centered. Appropriate technology has been used to address issues in a wide range of fields.

Appropriate technology is most commonly discussed in its relationship to economic development and as an alternative to technology transfer of more capital-intensive technology from industrialized nations to developing countries. However, appropriate technology movements can be found in both developing and developed countries. In developed countries, the appropriate technology movement grew out of the energy crisis of the 1970s and focuses mainly on environmental and sustainability issues. Today the idea is multifaceted; in some contexts, appropriate technology can be described as the simplest level of technology that can achieve the intended purpose, whereas in others, it can refer to engineering that takes adequate consideration of social

and environmental ramifications. The facets are connected through robustness and sustainable living.

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