Chapter 6

Contemporary Issues in Engineering

What is Globalization ??

- Globalization is the process of interaction and integration among the people, companies and government of different nations, a process driven by international trade and investment and aided by information technology.

- This process has effects on the environment, culture, political system, economic development and prosperity, human well-being in societies around the world.

- Globalization is not new, it started thousands of years ago via Trading. *E.g. Silk Road which connected Central Asia, China and Europe boosted globalization in the Middle Age.*
- Policy and technology developments of the past few decades have spurred increases in cross-border trade, investment and migration so large that many observers believe the world has entered a qualitatively new phase in its economic development.

- Today globalization is "farther, faster, cheaper and deeper"
- The current wave of globalization has been by policies that have opened economies domestically and internationally.
- Today, many governments have adopted free market economic system, vastly increasing their own productive potential and creating myriad new opportunities for international trade and investment.

- Governments have negotiated dramatic reduction in the barrier to commerce and have established international agreement to promote trade in goods, services and investments.
- Taking advantage of new opportunities in foreign market, corporations have built foreign factories and established production and marketing arrangements with foreign partners.
- A defining feature of globalization, therefore, is an international industrial and financial business structure.

- Technology has been the other principal driver of globalization. Advances in information technology, in particular have dramatically transformed economic life.
- Information technology have given all sorts of individual economic actors – consumers, investors, businesses – valuable new tools for identifying and pursuing economic opportunities, including faster and more informed analysis of economic trends around the world, easy transfers of assets, and collaboration with far-flung partners.

- The topic **globalization** is very controversial.
- The supporters argue that is allows the poor countries and their citizens to develop economically and rise their standards of living.
- While the opponents claim that the creation of an unrestricted international free market has benefited multinational corporations in the western world at the expense of local enterprises, local cultures and common people.

- Resistance to globalization has therefore taken shape both at a popular and at a government level as people and try to manage the flow of capital, labor, goods and ideas that constitute the current wave of globalization.

Globalization and Cross Cultural Issues Cross Culture – Identification

- The meaning of cross-cultural lies in the impact that culture has on an individual and his / her community, and the effect of this impact when different cultures are combined.
- The culture in which a person is raised plays a significant role in shaping his / her values, morals, behaviors and attitudes.
- These characteristics impact how a person thinks and what his overall mind-set is towards the world around him/ her.
- When a person is met with the principles and ideas of a different culture, a cross cultural interaction takes place

Cultural Differences.

- Cultural differences can become most apparent when people from different cultures interact socially or in circumstances involving business.
- Personal space, manner, time, forms of addresses and gesture are possible area where cross-cultural differences can come into play.
- E.g norms surrounding personal space can vary from culture to culture.
  - Personal space has to do with the acceptable distance that exists between one person and another during conversational exchanges.
  - America may have a one-to-two foot comfort zone, someone of a different country may consider six inches to be an acceptable personal area.

Cross-Cultural Communication

- Cross-Cultural communication exists when people from different cultures have reached a certain degree of understanding regarding their differences.
- For understanding to take place, both people must have some form of knowledge or awareness regarding the norms or customs that exists in each others' culture.
- Verbal or non verbal communication can contain implied meanings, as well as certain degrees of symbolism.

- For successful communication, to take place, background knowledge concerning values, norms and perceptions is necessary in order for clear, effective communication to take place.

Cross-Cultural Psychology

- The impact different cultures have on people's behavior, emotions and thought processes is the focus of cross-cultural psychology.
- The norms and value within a culture go a long way towards shaping a person's psychological make-up and how he /she interacts with the environment.
- The social structures, manner and values within a culture determines what type of experiences a person has had.
- These experiences work to shape perceptions, expectations as well as a person's sense of identity within the context of society.

Cross-Cultural Research

- Cross-Cultural research examines how different cultures compare in terms of human behavior.
- The purpose of this research is to address the growing conflicts and global concerns that arise as a result of cultural differences.
- Statistical data is complied to determine how prevalent particular norms or customs are within a culture.
- This helps with determining how influential particular customs are within the workings of society.

- Steps to bridge communication differences are addressed by understanding how customs develop and how they affect the behavior that takes place within a society.

Public Private Partnership
PPP – Background & Experiences in Nepal

- Global competitiveness Report 2oo9/10 produced by the world Economic Forum
  - Nepal's position in infrastructure at 131 out of 133 countries surveyed throughout the world
  - need for increased investment in infrastructure and other basic services
  - government's investment and involvement is not enough implying the needs for a greater role of the private sector

- The Government of Nepal (GON) has accepted public-private partnerships (PPP) as an alternative source of procuring assets and services, including the private sector's financial participation for meeting the increasing demand for infrastructure and services in the country
- For Example, KMC started PPP for Gongabu bus park, construction of foot-bridges at different locations, operation and management of Dharahara and its surroundings.

- the Ministry of Physical Planning and works made public calls to the private sector to invest in four large projects.
- Expression of interest (EOl) & Request for proposal (RFP) was the "fast track" road project from Kathmandu to the terai.
- private sector partner in Kathmandu's waste management

Vision and Obiectives of ppps in Nepal

- the involvement of the private sector enhances cost effectiveness, the Government of Nepal has accepted the private sector as a development partner in the social and economic development sectors.
- the Government has laid strong emphasis on the public-private partnership (ppp) approach
- especially in the physical infrastructure and service delivery sectors.

Definition of PPps

- A contractual agreement between a public entity and private entity
- For the delivery of infrastructure or services in the public interest Where the public partner focuses principally on the output and allows the private partner to determine the input in which a substantial transfer of appropriate risk takes place to the private party
- Where the private party or parties have investments at risk, although capital investment may not be required in all PPPs Where better Value for Money can be demonstrated than traditional public provision
- All PPP projects conforming to this definition will be conducted through the institutional framework and the procedural process.

- Public Enterprises, Joint ventures and Privatization are not considered to be ppps in (anticipated)

Build and Operate infrastructure Act-2063

(a) Build and transfer (BT),
(b) Build, operate and transfer (BOT),
(c) Build, own, operate and transfer (BOOT),
(d) Build, transfer and operate (BTO),
(e) Lease, operate and transfer (LOT),
(f) Lease, build, operate and transfer (LBOT),
(g) Develop, operate and transfer (DOT),
(h) By other methods of similar kind

Risk on PPP

- Risk should be correctly identified and allocated between parties during the procurement of the PPP project with consideration of the implication of these risks over the full project life.
  - The typical risks related to PPPs include

- Related to ppps include-
  - Public risks: political, administrative practices, change in laws and regulations, dispute(Argument) resolution and enforcement
  - Economic and financial risks: interest rate levels, macro events and development;
  - Market risks: demand forecasts, technology change.
  - Construction risks: timely completion, hazards,
  - operations and maintenance risks: operation and life cycle cost
  - Environmental risks:
  Exchange rate and interest risk; Acceptability of risk

Requirements of ppps

- Able to demonstrate better Value for Money, reflecting inter alia appropriate risk allocation between parties
- Financially affordable and sustainable to the Nepali fiscus over the full lifetime of the ppp arrangement
- Defined as much as possible on an output basis to allow private innovation in delivery approach
- competitively procured through a transparent and open procurement process
- Managed and monitored in a responsible fashion by the public partner concerned over the full life of the ppp arrangement

Main Types of PPP Arrangements in Nepal

- Revenue PPPs
- Availability PPPS
- Hybrid PPPS

Elieible Partners and their Roles in ppp

- ## Public partners
- Central or National level ministerial and government departments individually or in inter-ministerial arrangements
- Public bodies, namely entities having majority shareholding of the government, e.g. Civil Aviation Authority,
- Electricity Authority etc.
- Federal/Regional level offices of the Government of Nepal
- Local level public bodies, specifically district, municipal and VDC level government entities

- Private partners
  - Private enterprises: domestic or foreign NGO/INGOs
  - Community based organizations, cooperative organizations
- Citizens and Civil Society

Sectoral Coverage and priorities of ppps

- Eligible Sectors
  - For PPPs in sectors which are concerned with immediate matters of national defense or public safety, for example, military or policing, additional assessment must be undertaken to ensure that national of public safety issues are adequately addressed.
- PPPs should not be applied in sectors for which the government is not responsible and in which it is generally considered that the sector is more appropriately delivered by the private sector on its own, such as sectors falling under privatization.

• **Priority Sectors**

– Physical infrastructure and transportation (roads, bridges, ports of all types)

– Energy sector, both large scale hydro-power, rural energy and renewable energy . information and communication sector

– Environment sector like solid waste management and water and sanitation Basic services sector like health and education

PPP Contracts and Contractual Requirements

- Clear and measurable outputs
- Clear definition of assets, asset-ournership and responsibilities
- Contract duration
- Performance based payments

Private

Full Privatization
- Ownership, all risks and responsibilities transferred to private sector
- Duration: in perpetuity

DBFMO/Concession
- Investment into new (DBFMO) or existing (Concession) infrastructure made by private sector
- Full system operation by private sector
- (Economic) ownership of infrastructure /facilities with private sector for duration of contract
- Risk profile: budget based: revenue risk with government, financial, operational risks fully with private sector
- Duration: 15 – 50 years approx..

Lease
a) Private entity fully responsible for providing service and operational investments
b) Ownership: Remains with public sector
c) Risk Profile: Revenue risk with private sector: major investments made by public sector, minor investment made by private sector
d) Duration: 10 – 30 Years

Management Contract
a) Facility Management
b) Operational Management
c) Support primary operational process
d) Ownership: Remains with public sector
e) Risk Profile: Private sector receives a fee, partially linked to performance
f) Duration: 5 – 15 Years

Service Contract
1. Maintenance of Equipment
2. Security Services
3. Cleaning Services
4. Ownership: Remains with public sector
5. Risk Profile: Private sector receives a fee for their services
6. Duration: 1 – 5 Years

Public

Private

Development and Environment

- The environment protection act 2053 has tried to protect environment. Clause 7 of EPA 2053 states that nobody shall create pollution in such manner as to cause significant adverse impacts on the environment or likely to be hazardous to public life and people's health protection rules 2054 while practicing engineering profession.

- There is provision of two important examinations which are to be carried out before initiating infrastructure projects in EPA 2053 , Initial environment examination(IEE) and initial environment impact assessment (EIA).

- **initial Environmental Examination (lEE)**
  - A report on analytical study or evaluation to be prepared to ascertain as to whether, !n implementing a proposal, the proposal does have significant adverse impacts on the environment or not, wheher such impacts could be avoided or mitigated by any means or not
  - construction or roads, city, rural and small feeder roads proposals requires IEE

- **Environmental Impact assessment (EIA)**
  - it is a report on detailed study and evaluation to be prepared to ascertain as to whether, in implementing a proposal does have significant adverse impact on the environment or not whether such impact could be avoided or mitigated by any means or not for construction of national high ways and main feeder roads.

Conflict and dispute Management

- ## Traditional approach
  - conflict in general is understood something which is not good for organizational health
- ## Behavioral approach
  - influenced the conflict theory. The behavioral approaches to conflict views it as natural because conflict is the inevitable outcome of behavioral interactions. since, organizations and project do have a group of people conflict can't be avoided in an organization and project setting. Therefore this approach suggest us to accept it.

- Integrationist approach
  - This view not only regards conflict as necessary but also encourages having conflict for effectiveness of the operation. According to this approach, conflict within manageable limit is beneficial
  - All conflicts may not be good and positive. Therefore, conflict may be classified as
    - a) Functional (constructive) -The conflict supporting goals of the group that helps in performance improvement
    - b) Dysfunctional (destructive)- The conflict hindering group performance

- Levels of conflict

   a)intrapersonal - Conflict occurring within the self

   B) interpersonal - This conflict May arise because of differences in goal and roll of an individual. This conflict occurs between two or more persons basically because of communication gap and perceptual differences.

   c) Intergroup - it is occurred between groups because of difference between them. in sharing resources and implementation of conflicting rewards and punishment system may be taken as an example

- Inter-organizational: It occurs between organizations because of various issues related to organizations functioning such as competition

sources of conflict

a) Personal differences

b)Goal and role incompatibility

c) Organizational climate and change

d) Gender and other social differernces

e) Availability and accesses to resources and

f) Communication gap

Resolution of conflict

A) Avoidance - This method suggests avoiding conflict by suppressing

B)Diffusion - conflict is tried to deactivate through diffusion.

c) containment - conflict is allowed to bring into notice in a controlled manner and for resolution discussions and bargaining take place.

D) Confrontation

- – Conflict related issues are brought out and tried to resolve the issues adopting necessary measures by addressing the needs of the parties in conflict. A face to face meeting conducted to find out the mutually agreed solutions.

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