

# Ethics in Surveying in Nepal

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## 1. ABSTRACT

**Key words:** Ethics, Standards, Cadastral survey, Data acquisition

Morality on general public is declining gradually since the inter action with Indian business community in 1960s. Younger generation moved around the world, they have enhanced the honesty and morality of Nepalese people.

The surveyors are expected to have high moral values, fair and honest in decision making and sincere in their works. Surveyors of our generation carried out the work fairly to the expectation of public and took the side of weaker section of the society, so that the justice will prevail in the society. During the decision making, it is taught that it was not necessary to follow the order of senior and court order if it is contrary to the law. It needed to appeal with reasons.

Earlier (1940-50)Cadastral surveys were nullified and records were destroyed due to poor adjudications. The survey conducted during 1960-90 endorsed by public and government despite the lack of modern technology and training of staffs.The Land Survey(Measurement) Act 1962, enacted followed by Survey Bye- law and Manuals in 1970s which control the quality of works and developed public confidence.

The quality of earlier maps i e smaller scale maps and old documents have limited the accuracy, which is difficult to convince the land owner during the dispute. The surveyors have difficulty to avoid discrimination and many cadastral surveyors are in litigation of corruption due to instructions of seniors.

The employed surveyors are now qualified persons and using modern technologies to avoid inaccuracy, mistakes and win public confidence. The specifications and manuals of modern survey technologies are being drafted. The Government of Nepal also launched on April 15, 2021 “Mero Kitta and Nepal Land Information system (NeLIS) to facilitate realty sector as a part of “Digital Nepal” programme.

It is necessary to teach ethics, introduce latest technologies and train personnel with them to survey and data acquisition of difficult terrain and climate. Only persons with high moral, education and aspiration will work effectively in Himalayan areas.

## 2. BACKGROUND:

Ethics and morals relate to “right” and “wrong” conduct. Ethics is the rules of conduct recognized in respect to a particular class of human actions or a particular group or culture. Ethics are governed by professional and legal guidelines within a particular time and place.

Moral is principles or habits with respect to right or wrong conduct. While morals also prescribe dos and don'ts, morality is ultimately a personal compass of right and wrong.

Morals are also influenced by culture or society, but they are personal [principles](#) created and upheld by individuals themselves.

Act is the regulation enacted by Parliament, which describe the general procedures to carry out survey works.

Standards are the minimum quality works to be carried out at the state of technology available for that work. It is to establish norms or requirement for replicable technical tasks.

Standard for geodetic survey, topographical mapping and cadastral survey were prepared by Survey Department before 2000. Now new standards are being prepared like DGPS survey, digital mapping, LiDAR survey and soon. The studies of tunnel, road, bridge and hydropower constructions are being carried out as per survey specification or TOR. Digital cadastral data are being prepared and assessment of affected land is carried out on it. Progress of legislations in survey except land use is not progressing for decades. Dozens of staffs of Survey Department are in legal actions for corruptions and progress of most of resurvey work is very slow. Topographical and cadastral maps are out of date due to development of infrastructure and urban development and position data of geodetic control points are out of date due earthquakes and requirement of new developments. Senior surveyors are not sensitive to the weakness of existing maps and data, and legislations. These are the reasons, surveyors may fall into disputes or corruption.

The education of junior surveyors is only 1.5 years training after SLC or 10 years education, surveyor with diploma has 3 years training in surveying and the officers with BE or 4 years undergraduate study in Geomatic Engineering. Most of the field works are done by junior surveyors and surveyors and corruption cases are due to work of surveyors or directive from higher offices/senior officers. Present situation of professional ethics may be described as below.

### **3. EARLIER PROBLEMS**

The earlier survey works before 1960, it was carried out by military staffs. The cadastral/land records were prepared and maintained by Jimindar, Mukiya or Talukdar- the landlord with or without maps. There were no acts or government legislations except “sawals” (manuals) for each area and each rank. The civil code (Muluki Ain) will guide the officers on land registration. Cadastral data prepared during 1940-60 were not legalized, due to lack of proper notification and adjudication. Good colour maps were prepared which had no use. The survey was carried out by chain survey and plane table with sight vane. Survey work was transferred civilian office as Goswaras. Survey Department was established as civilian office in 1957 (2013) to look after surveying and mapping activities of Nepal as a national mapping organisation. Land (Survey and Measurement) Act was enacted in 1962 which had firm basis for survey works. Survey circulars were produced and circulated for each works from Survey Department.

The earlier i.e. prior to 1960 were the military personnel has to carry out certain amount of survey work per day, which they were sincere. The Jimindar, Mukiya or Talukdar did not provide ownership data accurately and timely, which made adjudication inaccurate. There were no clear published legislation for duty and responsibility of surveyors, Jimindar (landlord) and tenant (cultivator) nor method of notification, participation of tenant, receiving complaints and decision on complaints.

#### **4. LEGISLATION**

The land (survey & measurement) Act 2019 (1962) was enacted and cadastral survey was carried out along with circulars prepared and circulated from the Survey Department to conduct cadastral survey. Land (Survey and Measurement) Byelaw 2032 (1975) was enacted by the government. Various Manuals were prepared and published in 1970-80s for the survey work. Land Act (2021), Land Revenue Act 2032 and Trust (Guthi) Act 2034, were also enacted. There are more than 60 acts and regulations required to follow by cadastral surveyors now. Land use act 2076 (2019) is also enacted.

Land (Survey and Measurement) Byelaw 2058 (2001) is needed to amend to cater the need of digital survey and mapping. It is about 7 years behind of amendment. Now, all the works of survey has carried out in digital system and manual survey system is phased out in 2014. The cadastral survey of Nepal is general boundary system. Legislation is seriously lacking in cadastral survey in digital mapping. Previous map of rural area were at smaller scale (1:2,500-1:4,800) with tremendous increase of value of land. These maps of 1-3 m accuracy is serious problems in the new urban areas. Therefore, amendments of survey Byelaw and remapping are urgently needed to avoid future litigation.

#### **5. ETHICS EDUCATION:-**

The basic course and diploma course in Geomatic Engineering has no course on ethics in the syllabus. However, they are kept in strict disciplines. Working procedures are developed in such way that the quality of works are self-checking. The code of conduct of offices are so strict, the surveyors will be punished strictly in the past. Due to population growth and urbanization increased the cost of living and value of the land. Land owners and politicians were interested to acquire land free of cost and trends to bribe the cadastral surveyors to increase the area at least on land records.

There were revolutions in Nepal every 10-20 years instigated by foreign countries. It was found during the revolutions, maps were tempered or changed the boundary incorporating government land by non-technical people and later on- after some years, land owners request for checking the areas of the land parcels and area were increased as per map. The staffs of the office were suspended and legal action was taken to them. Some offices were burnt/lighted fire and documents were destroyed during these revolutions which needed to resurvey of the areas.

Many past officers are now in litigation, due to transferred of public or government land to private persons like prime minister quarter land was transferred to private persons with decision of prime ministers. All administrative staffs including secretaries of ministries and survey and land administration staffs are in litigation.

The professional practice and ethics is taught in B.E. Engineering of 3 credit hours. It includes like professional ethics, procurement procedures of acquiring goods and services, the environmental assessment in the courses. The students are also sensitized to protect environment and carry out sustainable development.

The altitudinal variation of Nepal is very high. It may vary from 60 m to 8,850 m in a 100km distance. Therefore, surveyor may have to work up to 3000m altitudinal variation in a day. The climatic situation in Nepal varies from hot (40-50°C) humid tropical climate to cold (- 15 to -35°C) like arctic region and very thin air of Himalayan. At the same time, there will be lot of pressure from public and lack of man power and resources. It is necessary to teach ethics, introduce latest technologies and train personnel with them to survey and data acquisition in difficult environment, terrain and climate. Only persons with high moral, education and aspiration will work effectively in Himalayan areas.

## **6. PRESENT SITUATION**

New staffs are recruited from open competitions by Public Service Commission as per academic education and training criteria published by concerned ministries. They will be briefed about their duties through in service training and are employed with probation period.

If the employees do not carry out duty properly during his/her tenure, he/ she will be suspended from service and face the litigation. The employees will get remuneration and facilities as per the government regulations. It is understood that their salaries and facilities will not be sufficient to live as per status of the employee in least developed countries. Therefore, the staff are groomed to live simple life and provide minimum facilities in field works. Guests' houses and other facilities require to develop by the concerned office which also reduces insecurity of materials, property and personnel and cost of living.

Posting will be done by the concerned office with priority on merit basis. They will be transferred almost every two years and employees need to work different geographical locations. It is required to work in remote areas before promotion. The promotion will be on the basis of work performance, number of year service, experience of works, academic qualification and training achieved. Continuous Professional Development (CPD) will be carried out of most of the staffs and certain training will be compulsory for promotion.

The work performance will have higher marks. Therefore, better performances will give better responsibility and better chances of promotions. Work performance marks will be higher to the persons who is regular, knowledgeable to subject, higher skill and better public relations or skill of negotiations.

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## **7. STANDARDS AND SPECIFICATION:-**

The specification of monuments, geodetic survey, topographical and cadastral survey works were prepared during 1970s. Due to change of technologies, new specifications are also needed to prepare and terms of reference (TOR) for various works are being prepared as and when needed. Final standard of survey works are being compiled and could be finalized in after the Covid 19 is over.

Specifications of various instruments are available and specification of various works are also being prepared. The draft Ethical and other standards of survey professionals are also being compiles from Nepal Institution of Chartered Surveyors(NICS) which is more or less as per the standards of FIG Publications.

## **8. EMPLOYMENT**

Government or public sector employs personnel on the basis of qualification decided by the concerned agency of the service who decide the academic qualifications and experience. The public service commission will advertise and recruit required number of persons with following quotas- female 15%, aboriginal or schedule caste 12%, Madhesi (Terai people) 10%, untouchable 4%, person from backward areas 2%, and disable person 2%. Qualified candidates are selected on the basis of written examination and interviews as per the quotas at one time during the service which is only one time during the services.

Private sector also employed the qualified staff advertising through National Daily newspapers and selected by interview and judging the past experiences.

Good Governance is judged by recruitment of staff, transparency of financial matters and procurement of services and goods. Public procurement is based on Public Procurement Act 2007 and its rules. It applies to corporation, provincial and local governments and other public sector offices. Private sector is also follows the Public Procurement Act 2007 and its rules with some leniency.

## **9. WOMAN PARTICIPATION**

Girl enrollment in B.E. is about 25%, 27% in Diploma and 30% in basic courses in Geomatic Engineering in Nepal. They are competing boys in university education as well as in the public service commission examinations. The participation of girls in surveying in Nepal will grow in future.

There were almost nonexistence in woman staff participation in survey in 30 years back and now we have 12% of woman staff working in surveying out of about 3000 staffs and 1020 posts are still vacant in Survey Department, Nepal. It includes in all sectors of survey education, geodesy, topographical and cadastral surveying. Private sector also employs female candidates in surveying and GIS similar percentage as in public sector.

## **10. ETHICS IN SURVEYING**

Staffs of surveying mainly cadastral are now facing disciplinary action or suspension for about 60 persons out of 3,000 technical staffs in Survey Department, Nepal. Disciplinary action is taken of 4-5 persons per year was normal and now too many persons were subjected disciplinary actions. These cases were published in national papers and announced in national news. It is insult of the survey profession. The commissions of 10-30% on procurement of services and goods is prevalent in Nepal which is part of corruptions needed to address.

Most of the survey work of Survey Department is carried out by regular staffs. Corruption cases arise on land registrations. There should be zero cases of such works. The reasons to increase the corruption cases where due to i) smaller scale of maps (1:2,500 – 1:4,800) and tremendous increase of land price and land owners want to increase the areas, ii) map are used to measure area and dimension of parcels manually, which is subjected personal judgment and every person will get different data, if it is digital data would be same value for all persons, iii) Land (Survey and Measurement) Rules (byelaw) 2058 (2001) is not amended to use digital system. iv) Progress of remapping is slow or negligible, v) Lack of sufficient staffs delayed the works and overcrowding the office, v) the Lekhandas (writer) and real estate agent are also interfering the cadastral maintenance works to decide in their favour and v) Evaluation of progress is not always based on the performance of staff.

In private practice, civil engineers used to conduct survey works in the past and they are being replaced by geomatic engineers or surveyors at present. Sometimes errors of the work will be much higher due to lack of knowledge of geomatic engineering. Therefore, person who involve to work of surveying should follow the following principles of ethics:-

1. Integrity
2. Independence
3. Care and competence
4. Duty
5. Public interest

The employed surveyors are now qualified persons and using modern technologies to avoid inaccuracy, mistakes and win public confidence.

## **11. CONCLUSION**

The course on ethics is needed to include in all level Geomatic Engineering courses.. The corruption is surveying due to lack of use of digital technology, amendment of survey rules, fulfillment of posts and revision or slow progress of resurvey of mapping. The evaluation of surveyors should be based on work performance and experience, and transfer and promotion should be merit basis as per regulations. Private survey works also needed to check by professional organizations like Nepal Institutions of Chartered Surveyors (NICS). Survey Department, Nepal should start and expedite the licensing of professional surveyors and recruiting staff.

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## **13. BIOGRAPHICAL NOTES**

Studied B. Sc., at St. Joseph’s College, Darjeeling, Diploma in Land Surveying at North East London Polytechnic, UK; Survey Training in USA, FAO, Italy, Japan; worked in Survey Department, Nepal to establish Topographical Survey Branch, Nepal China and Nepal India Boundary Survey works, Land Resources Mapping and Topographical Mapping as Survey

Officer to Director General from 1971 to 1998; Joint Secretary, Min. of Land Reform and Management-worked to draft Acts and Rules; After retirement from government service, established Himalayan College of Geomatic Engineering and Land Resources Management and worked as President and consultant of ERM(C) Ltd; also served as Vice president and President of Nepal Institution of Chartered Surveyors (NICS) and Oli Bansa Samanbaya Samiti; member of NSPRS other organizations. Publications- Sura Jagat(Solar system), Transliteration of Technical terms from English to Nepali, and various articles in surveying and Mapping.

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