

Standard Operating Procedure(SOP) for Disaster (Uttarakhand)

The power infrastructure is very sensitive to disruption/damage in the events of a natural calamity in the form of flood/earthquake/landslide etc. Due to power disruption the relief and rescue operation conducted in the affected areas are severely crippled as the communication system, health infrastructure etc. are rendered inefficient. As a result the process of relief and rescue fails to reach the most vulnerable and effected. Therefore the restoration of the power supply to the affected areas gains predominant important in such operations.

The SOP aims to address the quick restoration of power supply. The Standard Operating Procedure(SOP) aims to address the power supply restoration in three phases:

- 1- Pre Disaster phase (before the disaster)- this phase aims to reduce the risk/ vulnerability to the hazard. This phase aims to take preventive measures by stabilising and inbuilt mechanism into the distribution system so as to effectively address any possible disaster.
- 2- During the Disaster phase (when the disaster has occurred) - this is the most important phase where all the preparations made during the per event phase are actually put to action. It is the efficiency of operation in this phase that reduced the impact of the disaster on the people.

3- Post Disaster Phase (after the disaster has occurred)- this phase is taken up as a lesson from the just occurred event and seeks to address any short coming in the systems – man, material and management. The important of this phase lies in the fact that it is helpful in reducing the impact of any disaster in the future.

I. Pre Disaster Phase

The preparatory stage for the mitigation of any disaster shall follow a bottom up approach wherein the feed backs/ information flowing from the lowest level of field staff shall be analysed and acted upon at the higher level. The role and responsibilities of the field staff to the head quarters can be briefly summed up as follows:-

Line man:

The line man's of particular areas shall ensure the following:-

- 1- The single line diagram of their section should be readily available with them and they shall also provide the same to the concerned Junior Engineer.
- 2- They shall identify in their line diagram areas which they access as highly vulnerable to any possible disaster e.g. line section very close to a river bad or any section where there is a possibility/ a rapid occurrence of land slide etc.

- 3- They shall also identify important infrastructures like hospitals, police stations etc in their sections.
- 4- They shall also identify any portions where the lines are either partially damaged.
- 5- They shall necessarily hand over these updated map to the concerned Junior Engineer before the onset of monsoon season every year.

Junior Engineer

As the incharge of a section the Junior Engineer shall be solely responsible for taking all preventive action to reduce the impact of any disaster. The Junior Engineer shall ensure the following:-

- 1- Upon receiving the single line diagram from the line man of his areas he shall identify priority wise the most vulnerable sections. He shall prepare estimate for the strengthening of such sections, if possible or prepare estimate for providing an alternate supply in affected areas in case the vulnerable section is damaged.
- 2- He shall also ensure that all the critical infrastructure has an alternate supply and if required shall prepare estimates for providing the same.
- 3- He shall also prepare estimates for any partially damaged section.
- 4- The Junior Engineer shall submit all the estimate well before the onset of the monsoon every year.

- 5- The Junior Engineer shall ensure that he is well equipped with all the necessary T&P. In case the T&P is not available he shall raise the requisition with the concerned SDO/EE.

Sub Divisional Officer

- 1- Upon receiving estimates from JE for partially damaged/vulnerable sections the Sub Division Officer shall take prompt action and forward it to the concerned Executive Engineer(D) for the necessary approvals.
- 2- The Sub Division Officer shall be responsible for making available the T&P and safety kits to the Junior Engineer.
- 3- He shall also monitor the works carried out to facilitate quick execution.

Executive Engineer (D):-

- 1- He shall be solely responsible for according/ getting the necessary approval for these works.
- 2- He shall also ensure that the requisite supplies of material is available in the stores by ensuring communication to the Executive Engineer (Store) / Superintending Engineer(Material Management).
- 3- He shall also ensure the availability of transformer at the 33 KV S/s (38 nos. before the onset of the rainy season every year).
- 4- He shall review the progress of work once the approval are accorded so that the work is completed before the rainy season.
- 5- He shall coordinate with Executive Engineer(Power Controller, UPCL) to ensure regular supply to the affected areas.

- 6- The Executive Engineer shall also make proactive arrangements for additional human resource from outsourcing agencies, contractors so that they may be used during a disaster.

Superintending Engineer

- 1- He shall ensure according the necessary approvals and set an order of priority in his circle taking into consideration the inputs receive from the Executive Engineer(D)/Sub Division Officer(D) to channelize the available resources.
- 2- In case of requirement a shortage of material he may prepare a case for spot purchase.
- 3- He shall prepare a report about the works executed any circle and send it to concerned Chief Engineer (D) with a time frame for completion of each work.

Chief Engineer (Distribution)

- 1- The Chief Engineer shall arrange for spot purchasing of material in case the execution of work is hampered due to non availability of material.
- 2- He shall also coordinate with UREDA and explore possibility of alternate supply from their generating station, if possible.
- 3- He shall establish a communication with the headquarters and present a monthly report to the Director(Operation).
- 4- He shall seek decision from the headquarters in case a special provision on a policy matter is required.

II. During the Disaster Phase

When the disaster occurs the immediate action shall be geared towards the restoration of power supply to the maximum affected areas and especially to the critical infrastructure like hospitals, communication systems etc. The major challenge in such a restoration work is generally the lack of communication at the different levels and also the transportation of men and material. The field staff shall respond in the following ways in order to minimize the impact of the disaster as far as electricity supply is concerned.

Line men: As soon as the line man gets the first information about the possible occurrence of disaster which has affected his area he shall immediately try to reach the spot, if possible.

1. In case he is not able to reach he may get some information through the local contacts if the communication system are working. He shall keep an updated list of local contacts handy with him before the disaster.
2. Upon getting such information directly or through a local contact he shall identify such sections, possible area affected etc. and immediately report it to the Junior Engineer/Sub Division Officer.

Junior Engineer:

1. With helps of already available maps of the areas he shall identify the sections prepare an estimate and immediately make arrangements for the movement of material to the affected area after getting due approvals.

2. He shall identify the critical infrastructure and then ensure restoration of power supply to them in priority bases.
3. He shall immediately call for all the contractors in his area.
4. He shall report such an event to Executive Engineer.

Sub-Divisional Officer:

1. He shall report such an event to Executive Engineer.
2. Upon receiving the information about a disaster the SDO shall immediately move his base to the nearest 33 KV substation in the affected area.
3. In case multiple damages with wide geographical extent he shall move to location where it is possible for him to monitor the maximum area.
4. He quickly make a list of requisites which may not be available at the affected area and which could be arranged from other subdivisions/divisions/circles/stores etc. and provide it to the Executive Engineer concerned.
5. He shall monitor the execution of works himself along with the field staff.

Executive Engineer :

1. Upon receiving such an information it shall be the responsibility of the Executive Engineer to report such an event in writing to the Chief Engineer (Distribution) and Director(Operation), UPCL immediately as soon as possible.

2. Upon receiving the information from the Sub Division Officer about unavailability of certain material resources he shall immediately inform Executive Engineer store/Chief Engineer (Distribution) for necessary directions to the concerned.
3. In case the material cannot be transported by road or by labourers as report by Junior Engineer/Sub Division Officer, the Executive Engineer shall put up a case for air lifts in case of extreme emergencies.
4. He shall ensure that the necessary approvals are accorded and in case of delays may directly report the same to Director(Operation)/Managing Director, UPCL.
5. In case of requirement of additional technical men power the Executive Engineer may call upon out sourcing agencies/locals for providing the same.

Executive Engineer(Store):

1. Upon a possible short fall of requisite material the EE store of the concerned store division shall immediately report the matter to Superintending Engineer (Material Management) and Director(Operation), UPCL.
2. He shall also arrange material ,if available, from the nearby store centres under intimation of Superintending Engineer (Material Management).

Superintending Engineer(Distribution):

1. Once the first information about the incidence is received by him it shall be his sole responsibility to make communication about the daily progress of works, status of material, follow-up of necessary approvals etc till the required time.
2. He shall also look around for voluntary help from private firms and contractors on humanitarian grounds, if required.
3. He shall monitor the progress of works and provide directions or convey directions as given by Director(Operation)/ Managing Director, UPCL.

Chief Engineer(Distribution)

1. He shall be at the helm of all the operations being carried out for recovery from such a disaster.
2. He shall established liaison with the Commissioner of the zone and try to receive help from the respective district administration through the Executive Engineer(Distribution)
3. He shall also understand the requirement of the administration and guide the restoration work in such a manner to achieve them.
4. He shall pursue any decision on a policy matter which is required immediately at the level of Director(Operation)/Managing Director/ Chairman/Board, UPCL.

5. He shall also decide upon deputing additional officers/officials like the concerned Executive Engineer/Assistant Engineer/Junior Engineer(Test) for field operations.

Headquarters

1. The Director(Operation) shall constitute a 24x7 control room under the administrative and functional control of C.E./S.E. (Attach) to Director(Operation) for receiving daily progress reports from SE(Distribution) concerned and shall put the same for perusal of Director(Operation)/MD, UPCL.
2. In cases of extreme emergencies where an air lift is recommended by concerned Executive Engineer, the Director(O)/MD, UPCL shall request the GoU for allowing and facilitating such air lifts.
3. Director(Operation), UPCL shall liaison with Director(Operation), UJVN ltd. Director(Operation), PTCUL/ SE, SLDC PTCUL for ensuring no rostering in the affected areas.
4. In case of disruption the hydro generation of state or the CPSU's generating stations the Director(Operation)/ MD,UPCL may allow for purchase of power in order to avoid any rostering in the affected areas which may hamper restoration/rescue and relief operation in the affected areas.
5. In case the mobilization of additional manpower is required inter-zonal transfers may be immediately given effect.

6. For smooth functioning of the restoration of supply, mobilisation advance shall also be sanctioned and disbursed after taking approval from MD, UPCL as required by the Divisions on the basis of quantum of damage.
7. The field execution units may be granted, if required, a relaxation in the financial limits.

III- Post Disaster Phase:

The commencement of this phase shall be marked when

- a) The supply to the areas where it is possible through an alternate or through repair works is restored.
- b) The possibility of disaster has subduced and the same has been notified by district administration/ meteorological department or through other reliable sources.
- c) The infrastructure like roads reconstruction, power houses repair etc. has been done or started.

Junior Engineer:

1. He shall prepare estimate for the reconstruction of infrastructure which has been damaged so as to ensure reliable power supply.
2. In case the site of lines/substations have become vulnerable to further damage the estimate shall be prepare keeping in view this fact and hence a suitable relocation may be found.
3. The JE shall prepare a detail list of all the damages, there financial losses etc. within 30 days of commencement of this phase.

Sub Divisional Officer.

1. The estimates submitted by the JE's shall be accorded top priority. The SDO shall check those estimates and process them for approvals.

2. The SDO shall submit a consolidated report to the EE distribution about the losses, their financial implications and he shall necessarily comment upon the deficiencies in the present system, and suggest improvements for the same.

Executive Engineer.

1. The EE shall establish a liaison with the district authorities and seek allotment of safer land for relocation of substations/lines and for quick acquisition of the same if required.
2. The EE shall apprise SE/CE/D(O) about the extent of damages and also put up a report on the deficiencies in the system and suggest improvement for the same. The suggested improvement should be based on strong practical feasibility rather than mere theoretical suggestions.
3. He shall also make efforts for the release of funds from District Magistrates for the reconstruction work.
4. It is possible that a particular area can no longer be fed from the same 132 KV substation. In this case an alternate plan may be suggested to PTCUL.
5. The EE shall also establish communication with UREDA authorities for distribution of solar lanterns and solar panels in areas where great difficulty is experienced in the restoration of grid supply.

Superintending Engineer(Distribution)

1. The SE shall deal to ensure necessary approvals from the headquarters for the execution of the works.
2. He shall monitor the pace of the reconstruction works and apprise Director(O) with a weekly report.
3. The SE shall established a communication with SE (MM) and ensure the availability of material for the reconstruction work. In case of the unavailability of such material he shall inform Director(O)/Chief Engineer (C&P) in writing well in advance.
4. He shall constitute a committee for a spot purchases, if required.
5. He shall establish a separate reconstruction cell at the circle level which shall exclusively deal with the disaster works.

Chief Engineer(Distribution)

1. The Chief Engineer(D) shall review the reconstruction work daily.
2. He shall monitor any special schemes, provision of compensation etc in the affected areas for eg. waiver of domestic electricity bills after June 2013 disaster.
3. He establish coordination between UPCL, PTCUL and UJVN L.

Director(Operation)

1. He shall constitute Lessons Learnt Committee (LLC) comprising of the following members:

- a) Chief Engineer(Distribution/C&P/Project).
- b) Superintending Engineers.
- c) SE(MM)
- d) SE(C&P)

The committee shall examine reports from the EEs about the disaster and submit a report to the MD, UPCL about the following:

- i) The shortfalls in the present system for handling disasters.
- ii) The future modus operandi to deal with disasters.
- iii) Any structural changes required in the organisation.
- iv) The committee shall seek help from expert groups – NGO's, Govt. Organisations etc. to make a better plan.
- v) The committee shall explore the commendable work done by officers/staff and shall recommend suitable awards for the same.
- vi) It shall also highlight gross negligence's by officers/staff and shall recommend suitable action against them.
- vii) The committee shall make arrangement for visiting/studying other power sector DISCOMS and submit a list of best practices concerned with disaster management in them.

- viii) Committee shall also explore training programmes to better equip officers/staff for handling such disasters in future.
 - ix) The committee shall update/modify/amend the disaster management plan taking into consideration the discussion and reviews of reports by field officers.
2. The Director(O) shall pursue the case for release of funds by GoU in the form of NDRF/SPA etc.
 3. The Director(O) shall make any temporary structural changes in hierarchy, if required, after due approval from the MD UPCL.
 4. The recommendations of the committee accepted by the Board shall be put to implementation with immediate effect.