

Site Selecting for Road Weather Stations via Mashhad-Ashgabat to improve Road Weather Monitoring (RWN)

Abstract:

From the past, Rout of Mashhad to Ashgabat has been of great importance in the transit of goods and road transport between Iran and Turkmenistan. Each year, a large value me of exported goods is diverted through this route between these two countries as well as neighboring countries. Therefore, road safety management in this direction will be of great importance. In this field, road meteorological management is one of the key factors.

Road meteorological management is dependent on information obtained from existing stations. Therefore, the higher the accuracy of data extracted from the stations, the higher the decision-making accuracy. The location of the stations has an important impact on the accuracy of the data obtained from them. Two factors of the number and distribution of the stations of the Road Meteorology have a fundamental role in determining and calculating the meteorological data of a basin. It is not easy to determine the proper location for the installation of weather stations on the road. It should also be noted that if the number of stations desired is high, it is economically not economical, and if they are small, the accuracy of the data will be significantly different from the actual location. Several factors affect the Site Selection. For example, environmental factors and topography (elevation, slope, etc.) have a significant impact on the data taken from a station. The main objective of the installation of road metrology stations is to obtain relevant statistics and information, and to analyze them in providing predictions and forecasts, weather warnings on land and rail transport, mountaineering, flooding on roads, road maintenance and ultimately, it will increase the general health of the community. Measurement and evaluation factors at the road meteorological stations include the study of atmospheric degradation phenomena such as loss of sight, rainfall and flood, storm and snow and avalanches, sand storms, dust and dirt, icing and road surface slides, road surface pressure levels, the severity of surface winds and the minimum and maximum thresholds, relative humidity, temperature in different depths of the soil, sunlight duration, earth's radiation and snowfall.

Accordingly, the present study, tries to site selecting the road stations based on experiences of the developed and developing countries and by using descriptive-

analytical method and with an emphasis on its practical aspect and its adaptation to existing facts of mashhad-Ashgabad rout.

The main objectives for Site selecting and installing a Road weather stations in the studied rout are:

- Continuous provision of changing in statistics and information of meteorological elements in the area of the roads covered by the relevant station.
- Issuing of specific meteorological forecasts along the way in relation to wind speed and intensity, various storms with thunderstorms and the occurrence of destructive phenomena
- Publishing of announcements and warnings in the event of dangerous atmospheric phenomena in the course of the journey, the intensity of wind on bridges and various phenomena that are effective in reducing the visibility, especially in terms of forecasting floods, information on the height of snow, temperature changes overnight. The temperature and all kinds of fog on the roads will be.
- Land and rail transportation is one of the most important issues at the national level. The information required in this regard includes the use of atmospheric forecasts at different time periods and the announcement of relevant road-related warnings on the occurrence of meteorological phenomena on the one hand and the provision of information on the quantities and characteristics of elements and meteorological phenomena at different time periods are the other required that are importance for safety of transportation.
- In this way, the quality of road and rail transport depends on the environmental conditions. Unpredictable atmospheric conditions can prevent road traffic, traffic bypassing and roadblocks, creating financial and financial dangers for travelers and those who use any kind of communication network in transit.