telegrafia®

Early flood warning systems

- Torrential rains
- Excessive or heavy rainfall
- Fast melting snow
- Unexpected obstacles in a riverbed
- Alarming flow rate increases in rivers
- Groundwater level increases above the ground surface

Warning System
Smaller and medium-sized

Acoustic Coverage
Exterior

IMMEDIATE AND EFFECTIVE WARNING FOR THE AREAS AT RISK OF FLOODS AND TORRENTIAL RAINS

Floods, caused mainly by **torrential rains, melting snows, or steady rains accompanied by abundant rainfall**, pose a severe danger to both humans and their property. Regarding the weather vagaries and the sudden and rapid onset and dramatic progress of extreme weather events, the only efficient and sufficiently flexible method of early warning is a warning system based on electronic sirens.

Description of a flood warning system solution

The state-of-the-art early flood warning systems offered by Telegrafia are designed as small to medium-sized systems. They integrate a warning and notification system with one or more monitoring systems. They can be controlled via the **OCP16 Operator's control panel** or **Vektra®** software applications (SCADA, Warning and Notification) for the individual systems:

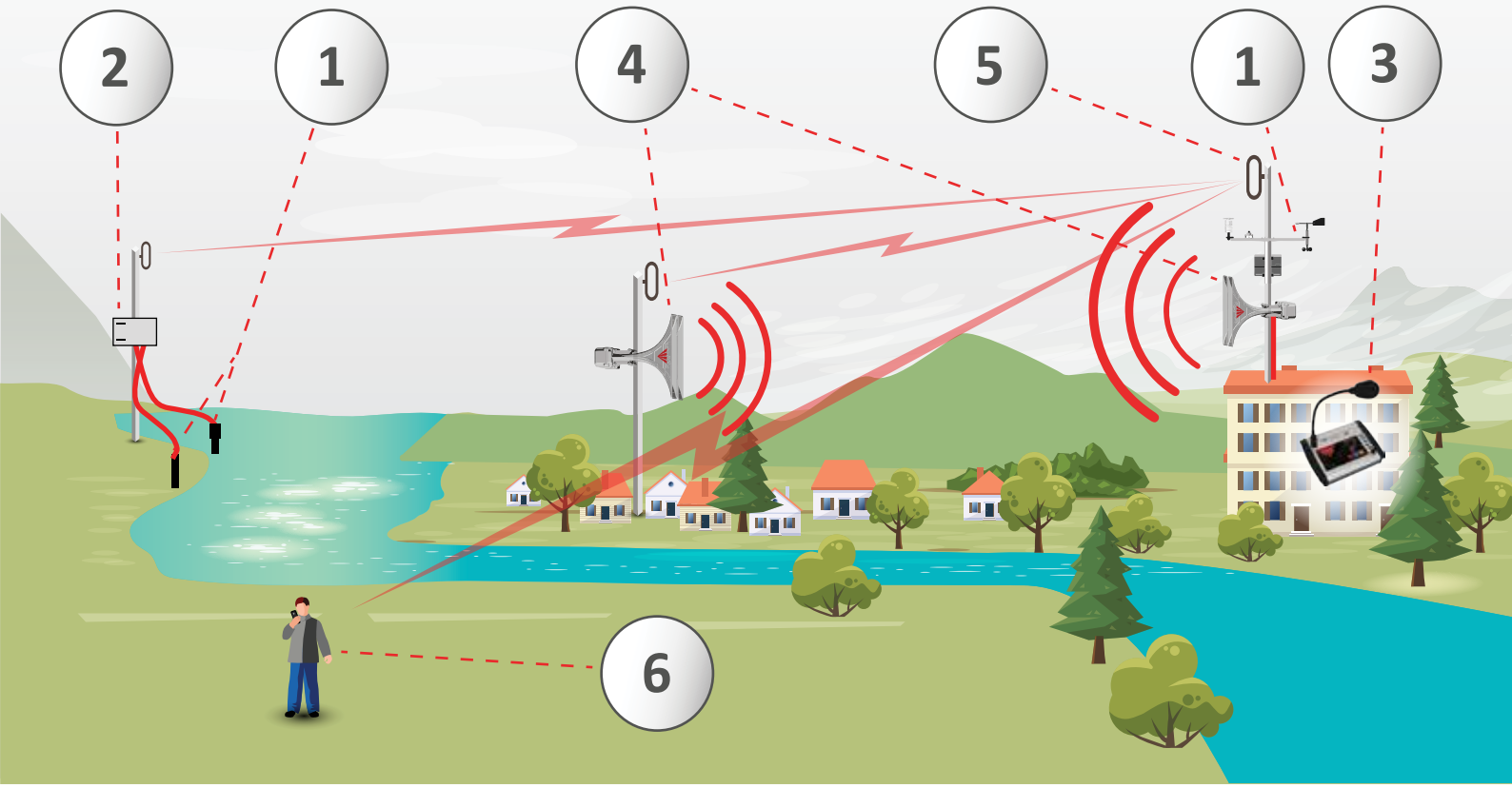
Monitoring system – monitors the actual hydro-meteorological situation (total precipitation, water levels in rivers)

Warning system with sirens – provides early warning for the population in endangered areas based on the information delivered by a monitoring system.

Notification system – informs the responsible persons through a voice or text message about an emergency and at the same time summons the personnel to emergency management meetings.

Advantages of the solution

- Possibility to use **data from weather and hydro-meteorological stations**
- **Automatic evaluation** of the values measured
- **Notification** of the responsible persons **at the first signs** of a possible emergency
- **Immediate warning and notification activation** after the recording of threshold levels
- Direct **connection of sensors to sirens** with no need for additional hardware
- **Large-area coverage** with a penetrating warning tone
- Total **independence of the system** in case of a power failure
- **Control of other SCADA devices**, e.g. switching off public utility supplies, switching on visual signalisation or gate control
- Intelligent operation thanks to **silent siren tests**, remote device **auto-diagnostics**, and connectivity with third-party systems



1 Weather station and sensors

A monitoring station monitors the total precipitation and other meteorological variables, while sensors measure and signal dangerous increases in water levels in rivers, reservoirs, and sludge ponds. They are connected to the EMA monitoring station. Since there may not be a source of electricity in some places where water levels must be monitored constantly, only **battery-powered monitoring sensors** are used. Such **sensors can work for several years**. Alternatively, it is also possible to use batteries charged from solar panels.

2 EMA monitoring station

Our **EMA monitoring station** collects the data measured and calculated by sensors and sends them to a warning control centre, mobile phones, or it can directly activate electronic sirens, PA systems or beacons.

3 Warning and notification control centre

Our **warning and notification control centre** is equipped with the OCP16 Operator's control panel or Vektra® software applications. It gathers, analyses, and evaluates the data obtained from sensors and a monitoring station—it can guarantee high security due to the backup technology used.

Depending on the expected development of a threat, several situation scenarios can be configured in the system:

- **Notification of the responsible persons at the first signs** of a possible flood situation; for example, by sending a text to a mayor
- **Sending preventative reports / warnings** to the population via sirens in an endangered area
- **Automatic activation of a warning system in the event of imminent danger**

4 Electronic sirens Pavian

Having recorded and processed the critical values from sensors, the **Pavian electronic sirens** automatically send a warning signal. Their great advantage is **the coverage of the entire inhabited endangered area** and **the speed of warning delivery to the population** in the given area. Thanks to their excellent intelligibility in reproducing the spoken word, they can also be used to manage preventative evacuation and, after the emergency, coordinate the affected population and help with rescue work. **The electronic sirens in a warning system** can be activated individually or in groups from the control centre, and their operation is entirely independent of the common commercial infrastructure. In the absence of an external power supply, the Pavian sirens can be powered from solar cells.

5 Communications infrastructure

Communications infrastructure facilitates immediate communications between the control centre and other elements of monitoring, warning, and notification systems, either via digital or analogue radio, TCP / IP, GPRS, or wirelessly over short distances. At the same time, it allows the connection of this system to third-party systems.

6 Notified responsible persons who are:

informed of the occurrence of an emergency by telephone or a text message and summoned to work for emergency and rescue operations.

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