ENVIRONMENT MONITORING

DEVELOPMENT PART 1

PRESENTED BY

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ABSTRACT

Environmental monitoring refers to the use of sensor modules to monitor an exterior environment. It is possible to implement widespread environmental monitoring thanks to the availability of new wireless connection and low energy sensor modules.

INTRODUCTION

- Environmental monitoring is used in the preparation of environmental impact assessments, as well as in many circumstances in which human activities carry a risk of harmful effects on the natural environment.
- The treatment and disposal of waste may cause environmental pollution and expose humans to harmful substances and infectious organisms. Waste generation is closely linked to the level of economic activity in a country, and reflects the society's production and consumption patterns.

OBJECTIVES

- Explore goals and objectives that reduce waste/waste streams at different stages of the building's life, from design through post-occupancy. Goals and objectives should be as specific as possible.
- Obtain agreement and commitment from the entire design team on waste goals and objectives.

PROGRAM

```
#include <DHT.h>
#include <WiFi.h>
#include <WiFiClient.h>
#include <ThingSpeak.h>

#define DHTPIN 2        // Digital pin connected to the DHT sensor
#define DHTTYPE DHT22   // DHT 22 (AM2302)

const char* ssid = "your-SSID";
const char* password = "your-PASSWORD";
const char* server = "api.thingspeak.com";

WiFiClient client;
DHT dht(DHTPIN, DHTTYPE);

void setup() {
  // Initialize sensors and Wi-Fi
}

void loop() {
  // Read sensor data
  float temperature = dht.readTemperature();
  float humidity = dht.readHumidity();

  // Connect to ThingSpeak and update data
```

```
  if (client.connect(server, 80)) {
    String data = "field1=" + String(temperature) + "&field2=" + String(humidity);
    client.print("POST /update HTTP/1.1\n");
    client.print("Host: " + String(server) + "\n");
    client.print("Connection: close\n");
    client.print("X-THINGSPEAKAPIKEY: your-API-KEY\n");
    client.print("Content-Type: application/x-www-form-urlencoded\n");
    client.print("Content-Length: ");
    client.print(data.length());
    client.print("\n\n");
    client.print(data);
  }

  delay(15000);  // Update every 15 seconds
}
```

Air sampling

Passive or "diffusive" air sampling depends on meteorological conditions such as wind to diffuse air pollutants to a sorbent medium. Passive samplers, such as diffusion tubes, have the advantage of typically being small, quiet, and easy to deploy, and they are particularly useful in air quality studies that determine key areas for future continuous monitoring.

Air pollution can also be assessed by biomonitoring with organisms that bioaccumulate air pollutants, such as lichens, mosses, fungi, and other biomass. One of the benefits of this type of sampling is how quantitative information can be obtained via measurements of accumulated compounds, representative of the environment from which they came. However, careful considerations must be made in choosing the particular organism, how it's dispersed, and relevance to the pollutant.

Other sampling methods include the use of a denuder, needle trap devices, and microextraction techniques.

Soil sampling

The two primary types of soil sampling are grab sampling and composite sampling. Grab sampling involves the collection of an individual sample at a specific time and place, while composite sampling involves the collection of a homogenized mixture of multiple individual samples at either a specific place over different times or multiple locations at a specific time. Soil sampling may occur both at shallow ground levels or deep in the ground, with collection methods varying by

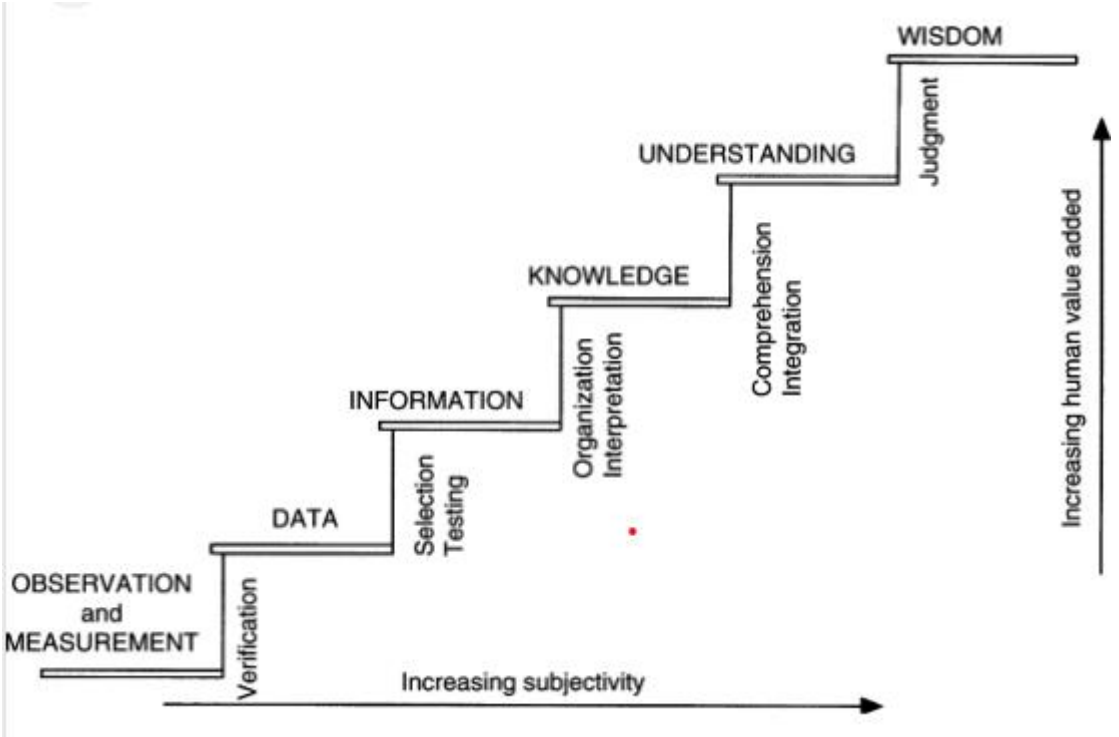
level collected from. Scoops, augers, core barrel, and solid-tube samplers, and other tools are used at shallow ground levels, whereas split-tube, solid-tube, or hydraulic methods may be used in deep ground.

Biomonitoring

The use of living organisms as monitoring tools has many advantages. Organisms living in the environment under study are constantly exposed to the physical, biological and chemical influences of that environment. Organisms that have a tendency to accumulate chemical species can often accumulate significant quantities of material from very low concentrations in the environment. Mosses have been used by many investigators to monitor heavy metal concentrations because of their tendency to selectively adsorb heavy metals. Similarly, eels have been used to study halogenated organic chemicals, as these are adsorbed into the fatty deposits within the eel.

Noise Level Monitoring

The measurement of noise levels will be carried out in five locations in accordance to the ambient Noise Standards formulated by MoEF&CC. The Noise level will be monitored on twenty-four hourly basis. Noise will be recorded at “A” weighted frequency using a slow time response mode of the measuring instrument. The names of the location, duration and the noise pollution parameters to be monitored are given in the Environmental Monitoring Plan



CONCLUSION

Environmental monitoring is critical to the protection of human health and the environment. As the human population continues to increase, as industrial development and energy use continues to expand, and despite advances in pollution control, the continued production of pollution remains inevitable.

THANK YOU