Air Quality Index, Environmental Policy, and Quality of Life in Croatia

What is the Air Quality Index (AQI)?

- AQI = indicator of **how polluted the air is**
- Based on pollutants:
  - PM2.5 (fine particles)
  - PM10
  - NO_2, SO_2, O_3
  - Expressed as a **numerical scale (0–500)**

AQI Scale and Health Effects

AQI Level	Category	Health Impact
0–50	Good	No risk
51–100	Moderate	Minor risk
101–150	Unhealthy (sensitive)	Breathing issues
151–200	Unhealthy	Everyone affected
200+	Very unhealthy	Serious health risks

Air Quality in Croatia

- Average AQI: **~59 (moderate)**
- PM2.5: **13.4 µg/m³**
- This is **2.7× above WHO guideline**

Air Quality by Cities

- Zagreb: AQI ~57 (good–moderate)
- Rijeka: PM2.5 ≈ 8.4 µg/m³ (cleaner)
- Slavonski Brod: highest pollution (AQI ~85)

Sources of Pollution

- 🚗 Transport (cars, tourism traffic)
- 🏭 Industry and energy production
- 🔥 Domestic heating (wood/biomass in winter)
- 🌍 Weather conditions (temperature inversions)

Monitoring System in Croatia

- ~80 monitoring stations nationwide
- Real-time air quality data available
- Covers:
  - Urban areas (Zagreb, Split, Osijek)
  - Rural/natural areas

Environmental Policy Framework

- Uses **European Air Quality Index (EAQI)**

- Must comply with EU directives:
  - PM2.5 limits
  - Emission reductions
  - Cross-border pollution cooperation

Policy Measures in Practice

- Cleaner fuels and renewable energy
- Emission limits for industry
- Sustainable transport (public transit, EVs)
- Air quality plans for polluted regions

Environmental Performance Example

- City of Rijeka:
- PM2.5: 8.4 µg/m³
- Meets EU 2030 targets

Air Quality and Health

- Poor air quality linked to:
  - Respiratory diseases
  - Cardiovascular issues

- Air pollution contributes to millions of deaths globally

Quality of Life in Croatia

- High Human Development Index
- Strengths:
  - Clean natural environment
  - Coastal areas with better air
  - Good healthcare system
- Weaknesses:
  - Urban pollution
  - Seasonal tourism pressure

Link: AQI → Quality of Life

- **Better air quality =**
  - Better health
  - Higher productivity
  - Longer life expectancy
- **Worse air quality =**
  - More disease
  - Lower well-being
  - Economic costs

Challenges

- Pollution hotspots (e.g. Slavonski Brod)
- Winter smog (heating)
- Traffic congestion
- Climate change

Future Improvements

- Expand renewable energy
- Reduce car usage
- Improve urban planning
- Increase environmental awareness

Conclusion

- Croatia has **moderate air quality overall**
- Strong **EU-aligned policies**
- Still exceeds WHO pollution limits
- Improving air quality is key to **better quality of life**