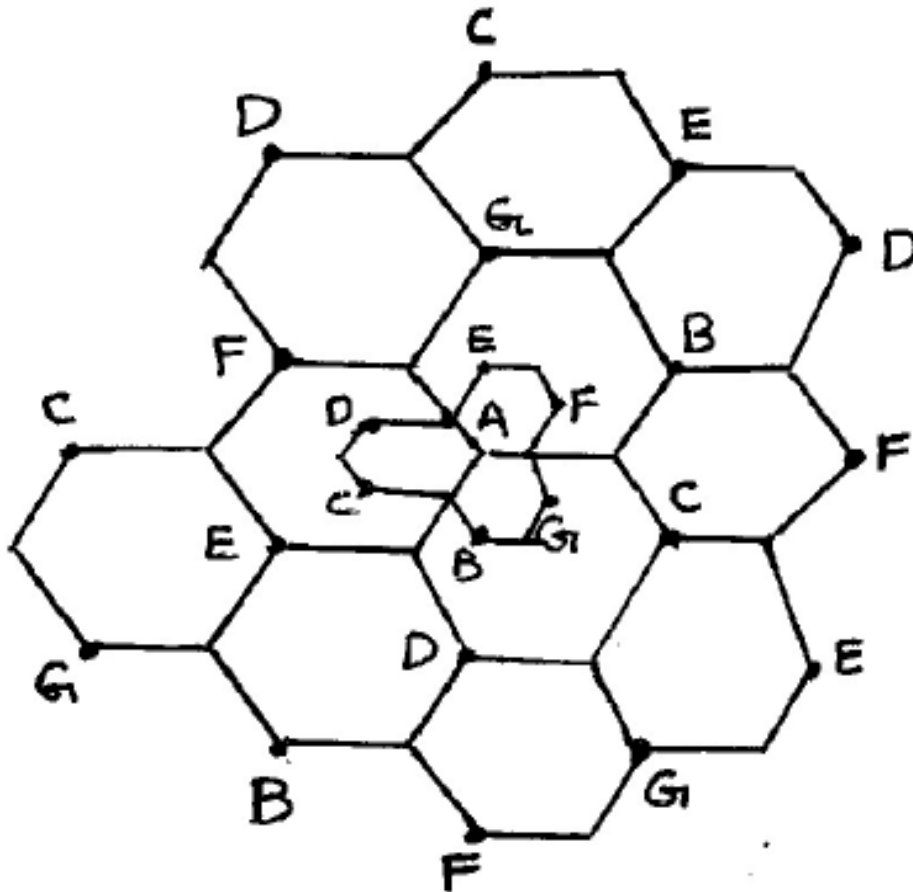


# Why cell splitting and sectoring?

- ❖ As users increases channel capacity decreases.
- ❖ Techniques are needed to provide extra channels.
- ❖ cell splitting and sectoring increases capacity.

# Cell splitting



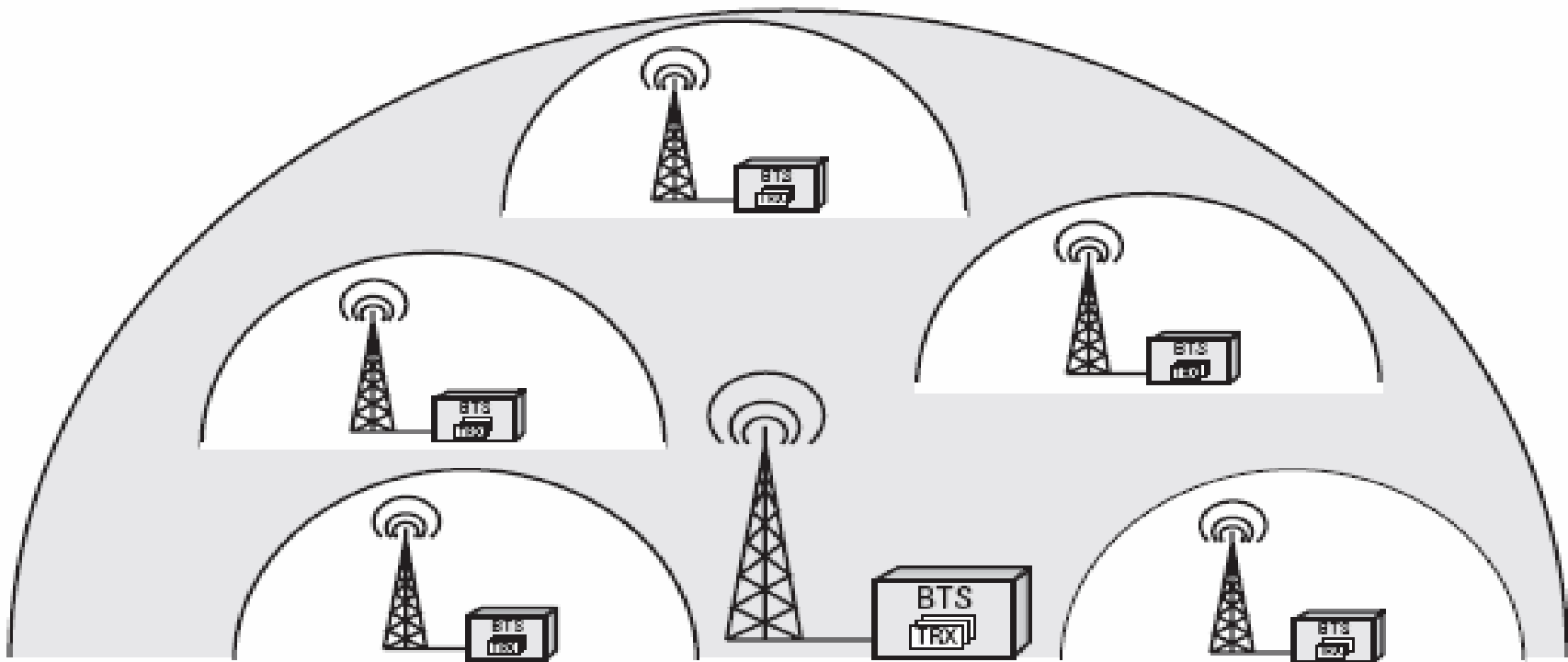
- ❖ The process of subdividing a congested cell into smaller cell.
- ❖ Each with its own base station and a corresponding reduction in antenna height.
- ❖ leads to increase in capacity

# Limitations:

- Handoffs are more frequent.
- Channel assignments become difficult.
- All cells are not split simultaneously so special care have to be taken for proper allocation of problem.

# Umbrella approach:

Handoff issues must be addressed so that high speed and low speed traffic can be accommodated simultaneously.

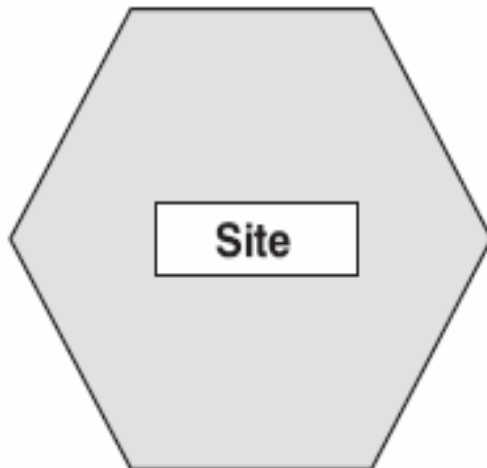


# Cell sectoring:

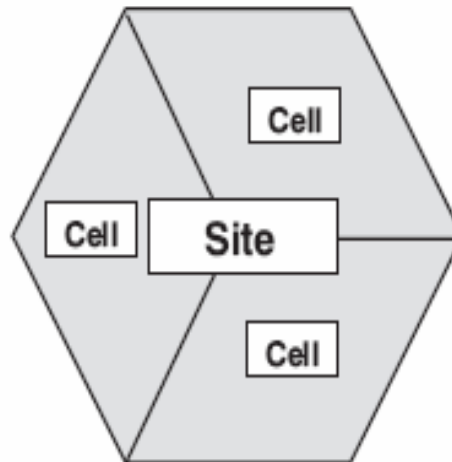
- To overcome some limitations like co-channel interference, cell sectoring is done.
- Involves replacing an omni-directional antenna at the base station by several directional antennas,

# Different sectors:

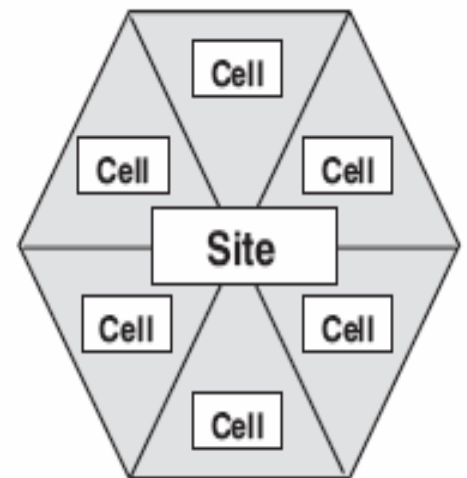
360 Degree cells



120 Degree sectors/cells



60 Degree sectors/cells



# Advantages:

- It improves S/I ratio.
- It reduces interference which increases capacity.
- It enables to reduce the cluster size and provides an additional freedom in assigning channels.

# Limitations:

- Increased number of antennas at each base station.
- Decrease in trunk efficiency.
- Loss of traffic.
- The number of handoffs increases as well.