

QUESTIONS 35 TO 38:

35. CSIR's answers to question 15.2 explained three things about ideal conditions for radio telescopes. Firstly, that radio telescopes must be placed far away from man made electronics or machines which emit radio waves. Secondly, that the site should be high. Thirdly, that the site should be dry. Quite simple criteria dictate radio astronomy locations.

35.1. A remote site, uninhabited, at a very high altitude and in a true desert, could well fulfill all three criteria. Did South Africa struggle to find a desert site at a high altitude, meeting all three criteria?

35.2. Perhaps the existing infrastructures in our area were a draw card for SKA? Do these existing infrastructures reduce the construction costs?

35.3. SKA started up in a gradual manner, promising locals that the whole area would flourish, improve and grow due to its presence. But the reverse happened. Soon cellphone signals were cut off near the core area, and communications collapsed completely for almost two years in many areas. SKA's vox satellite phones were made available only in 2015. The enforced restrictions on communication systems, commenced without impact studies first assessing resulting effects. Social and economic impacts hit hard after the loss of mobile digital technology. These impacts continue to escalate as SKA continues to expand, and currently (January 2016) more areas are losing their cell phone signals, we suppose in preparation for SKA phase 1. Despite this, incredible SKA official statements repeatedly claim that the Karoo location had been chosen due to its radio quietness.... Are we, the affected, missing something here?

35.4. Please explain to us how human rights are honored in our constitution? Are rural and urban societies governed by the same laws or are there discrepancies? What process and implications would follow if cellphone communications were restricted and cut off by a government department in one of our mayor capitals?

36. The second point made, was that a high altitude would be of a great advantage. The current dishes on Meysdam are placed on the flat land areas and not on top of hills or mountains. How high above sea level is the ground SKA currently owns? Internet research shows that the current site is at about 1000 meters. Is this information accurate?

36.1. The ALMA radio observatory site in the Atacama desert, Chile is situated at 5000 m (five thousand meters) above sea level, placing the radio dishes

above the earth's atmosphere which could blur and distort the findings. See www.almaobservatory.org The ALMA project is technologically very advanced and has been in operation since 2013.

37. The third point was that dryness is important for radio telescope observations. The SKA Karoo site, being a semi desert area, still receives an average of 250 mm rainfall annually. Tiny water droplets scatter radio waves in all directions before they can even reach the telescope. The observations will easily be degraded in the Karoo, especially in the wetter years.

37.1. There are drier areas in Southern Africa, why were one of them not chosen for the SKA project? Was the Karoo South Africa's only hope, and is our government settling for a bad deal rather than missing out completely?

37.2. The average annual rainfall in the Atacama desert, Chile, where the ALMA project is based, is below 100 mm. This level of dryness makes the site a true desert, and drastically reduces the absorption of radio signals by water particles. Does the ALMA site not satisfy the three criteria better than the SKA site does?

Excellent comparisons can be made on the websites, www.ska.ac.za and www.almaobservatory.org.

ALMA is also a radio interferometry site and an international project. Its findings are well documented on the DVD, "The Universe", produced by Discovery Channel.

38. Could you please identify the cost involved in SKA phase 1 in SA? Please state the national costs regarding the site costs, power lines, generators, transformers, tarring of roads, human resources, land-buy-out scheme and servitude's etc, etc ... in short, the approximate price that the South African tax payer will unknowingly pay?

38.1. How much, in monetary terms, do the international partner states plan to contribute towards SKA phase 1?

38.2. The total amount must be a staggering figure? Does a high price not justify the best location? The footprint of SKA phase 2 and 3 are now identified on a map published by the Department of Science and Technology, on the 23 November 2015. Should the CSIR's strategic environmental assessment not include the entire Central Karoo Area?

38.3. The SKA SA project has often been described as a prestigious project for South Africa. But, on the other hand, how prestigious will it be once the negative aspects are exposed?