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| **The Meeting of the SATRC Working Group**  **on Spectrum** | **SAPIX-SPEC1/ OUT-08** |
| 7 – 9 May 2024, Lalitpur, Nepal | 9 May 2024 |

Working Group on Spectrum

**QUESTIONNAIRE ON**

**Efficient valuation and pricing of spectrum in SATRC countries**

**1. BACKGROUND AND PURPOSE**

Spectrum valuation and pricing are essential tools for regulators and policymakers to balance the economic interests of operators, government revenue generation, and the broader public interest. The process of valuing spectrum, whether for regulatory purposes or in the context of spectrum auctions, is a multifaceted endeavor that takes into account several key factors, including market dynamics, technological evolution, use cases, and prevailing economic conditions. Achieving the appropriate valuation may present several challenges, given factors such as demand uncertainties, government revenue targets, and data limitations. Furthermore, the rapid advancements in wireless technologies, such as the transition to 5G and beyond, can introduce additional uncertainties into the spectrum valuation.

The adoption of appropriate valuation and pricing strategies by SATRC member countries can encourage the efficient utilization of spectrum resources, spur innovation, and foster the development of new wireless applications. This, in turn, can contribute to economic growth and technological advancement.

**2. SCOPE**

The scope will include the following:

* Valuation and pricing of cellular/IMT spectrum: approaches, models and associated issues
* The prevailing practices in SATRC member countries concerning spectrum valuation, pricing strategies, and cellular spectrum auctions, and the challenges being faced
* Backhaul spectrum pricing /charging mechanism
* Case studies in the context of 5G spectrum valuation
* International best practices
* Guidelines / Recommendations

**3. METHODOLOGY FOR CARRYING OUT THE STUDY**

The study will be carried out by the Experts of Working Group on Spectrum nominated by the SATRC Members. Therefore, in order to pursue the study, the following questions have been developed to obtain necessary information from the SATRC Members on the subject matter of the Work Item. Based on the information, the Experts will develop a draft Report on the Work Item for consideration of SATRC-26.

**4. QUESTIONS (All questions pertain to Cellular/IMT spectrum only)**

1. Who is responsible for:
   1. recommending spectrum base price in your country?
      1. Regulator ii. Government/Ministry iii. Others, please specify
   2. determining spectrum base price in your country?
      1. Regulator ii. Government/Ministry iii. Others, please specify
2. What methods does your country use for valuing cellular spectrum (e.g., International/ Regional Benchmarking of previous spectrum prices / auctions; previous auctions in your own country; cost-based approach (opportunity cost, deployment cost, administrative cost), Net Present Value (NPV), hybrid approach, etc.). If your country is using more than one methodology, then how do you arrive at final valuation. Please provide details.
3. Does your country engage a consultant to valuate spectrum pricing?

If not, do you have dedicated team of experts in your country that develop methodologies and work out the valuation at their own?

1. Does your country conduct an exercise to collect relevant data for the valuation of spectrum prices? If so, could you please share indicators/information being collected?
2. Does your country calculate spectrum prices and conduct auctions / awards at the national level or geographic/provincial levels? Kindly provide the following information:

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| --- | --- | --- |
|  | Calculate Spectrum prices  (Yes/No) | Conduct Spectrum auctions/awards  (Yes/No) |
| National Level |  |  |
| Geographic/Provincial level |  |  |
| Any other. Please specify |  |  |

1. Please provide data as per the table below, for last five cellular spectrum awards:

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sl | Jurisdiction (National/ Provincial/ others) | Award Year | Band Awarded | Spectrum blocks awarded | Block size awarded | Price per MHz\* (USD) | | Consultant Engaged (Yes/No) | Number of years for which spectrum has been awarded | Award Method (auction, administrative allocation, etc.) | Auction Model used (SMRA, etc.) |
| Reserved Price | Auction Winning |
| 1 |  |  |  |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  |  |  |  |  |

\* Note: For FDD bands price/MHz means price for paired (2x1) spectrum, whereas for TDD bands price per MHz means price for unpaired spectrum

1. How your country ensure that spectrum prices are efficient and reflective of market conditions?
2. How does the spectrum pricing strategy in your country promote efficiency and competition in the telecom market?
3. How do telecom operators in your country perceive the current spectrum valuation and pricing policies? Are there any suggestions or recommendations from the industry for improving the efficiency of spectrum valuation and pricing? Please provide details.
4. Keeping in view the technological evolution, please provide the following details:
   1. What future trends or technologies do you think will impact the valuation and pricing of spectrum in your country?
   2. Are there any plans to revise or update the spectrum pricing framework/approach in light of these trends? If affirmative, please provide details.
5. Have you conducted 5G auctions/awards in your country? If so, how was the base price determined for the auction/award? How different was the approach compared to previous auctions/awards for 3G/4G?
6. In your opinion, what are the lessons or best practices that can be shared among SATRC countries for improving spectrum valuation/pricing?
7. What are the main challenges faced in achieving efficient spectrum valuation and pricing in your country? e.g. Government’s objectives to maximize revenue generation from spectrum awards, etc. How these challenges can be overcome, where possible?
8. Is there any annual fee/charges for access spectrum in addition to one-time auction winning price/award price? If yes, kindly provide details.
9. Please provide breakdown and details of annual regulatory dues e.g. Universal Services Fund, R&D contributions, fixed regulatory charges, etc.
10. Does your country denominate spectrum prices in USD or local currency? Please provide reasons.
11. What were the terms and conditions for the payment of spectrum fee (auction winning fee) and associated rollout obligations in the last three spectrum awards/auctions? Please provide separate answers if conditions were different in each auction/award.
12. Is your country planning to introduce any relaxation in terms and conditions / incentives for operators in future spectrum auctions?
13. How do you charge the microwave backhaul spectrum?
    1. Through Auction
    2. Through Administrative Incentive Pricing
    3. Give away free of charge, coupled with access spectrum
    4. Linked with any other regulatory dues/operators’ revenue
    5. Any other mechanism. Please specify
14. If it is formula-based charging, what is the exact formula used for Backhaul Charging? Kindly provide details of each factor (band factor, bandwidth, geographic area etc.) included in the formula.
15. Please provide details as per the table regarding the backhaul spectrum.

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| Band | Charging Mechanism (per channel, per block etc.) | Initial Fee per link/ block | Annual Fee per link/block | Formula/ methodology for Annual Price increase (e.g. CPI based, etc.) |
| Low Microwave  (6 GHz ~ 13 GHz) |  |  |  |  |
| Mid Microwave  (14 GHz ~ 25 GHz) |  |  |  |  |
| High Microwave  (26 GHz ~ 56 GHz) |  |  |  |  |
| V- Band  (56 GHz ~ 71 GHz) |  |  |  |  |
| E-Band  (71 GHz ~ 86 GHz) |  |  |  |  |
| W-Band  (92 GHz ~ 114 GHz) |  |  |  |  |
| D-Band  (130 GHz ~ 175 GHz) |  |  |  |  |
| Any other Band |  |  |  |  |

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