Review of suppliers KASCOL 311 ha SDI system

Supplier	NETAFIM	JAIN	SARO	RIVULIS	METZER
Quotations	**USD 1,596,159**	**USD 2,498,847**	**USD 1,314,180**	**EUR 1,233,834.18** **euro rate USD 0.91 gives USD 1,357,476 USD**	**USD 1,527,143.98**
Quote USD/ha (taking tendered 304 ha into account)	**5,250.52**	**8,219.89**	**4,322.96**	**4,465.38**	**5,023.50**
General Impression of quote and design	Strong points: ✓ Good design: 1 lphr PC drip line, 0.5 m emitter spacing is good. ✓ Fertigation system looks solid. Weak points: - No Remote operation of valves, so manual opening of valves at block levels seems to be required. - No flushing manifolds, flushing laterals also needs to be done manually. Queries & remarks: • Quote includes transportation and installation supervision. 40,000 USD per month supervision sounds high, it would be good to ask what is included? • How many people will come over to assist? • Does this include e.g. travel and accommodation costs?	Strong points: ✓ The design is good and looking at the overview map, it includes flushing manifolds. Weak points: - The bill of quantities is missing details making it hard to assess what exactly is included. - Fertigation option is not worked out and cannot be assessed based on the available information. - Quote is not detailed and divided into three parts. the total of excavation and installation is 818,870 USD. This is very high, even if assuming that all installation work is included. - Other quotes include separate installation supervision which causes a difference in comparison. Queries & remarks: • When excluding the whole excavation and installation costs, the quote is more in the same range as the other parties, though still higher. Freight costs are also high in the quote.	Strong points: ✓ Design looks good. 1 lph and emitter spacing of 60 cm comparable with the other designs. ✓ The design includes a 'wireless monitoring and management system'. Assuming this includes the opening and closing of the valves of the irrigation zones, then this is a strong point of the design compared with Jain, Netafim and Metzer. ✓ Lowest Bid / Lowest cost per hectare Weak points: - A noticeable difference is that 1 x 50HP pump is selected to supply the required water. This could be a disadvantage when a single pump requires maintenance or breaks down, the system needs to come to a standstill. In comparison, when using 2 or 3 pumps, the crops can still be irrigated in case of breakdown of 1 pump. Therefore, a standby pump may be required with this option. Queries & remarks: • KASCOL is advised to request additional information about what pump is proposed, and if a standby pump would be required. • Regarding the 'wireless monitoring and management system': it needs to be confirmed what this automation exactly entails and how flexible the system is with the proposed automation.	Strong points: ✓ The design looks good and with its 1lph, 60cm emitter spacing similar to the other designs. ✓ The design contains 3 irrigation blocks (each block multiple individual fields) and it has a good flexibility whereby it is for example possible to just irrigate a few fields at the same time. ✓ The valves controlling the fields can be remotely opened and closed from the control room (pumphouse). This makes the operation easy. The fertigation option proposed is advanced and includes EC and pH measuring and control. This can optimize the fertilizer use. ✓ The design includes 6 pumps, 2 pumps per main supply pipe. This offers an advantage for maintenance and operation in case of break-downs. ✓ The main automatic, steel screen filters is a durable choice, with low head losses. ✓ The design also includes flushing manifolds making the flushing of the drip lines very easy, which is an important advantage. Weak points: - Civil works of the pump-station and water tank are included. However, other civil works such as excavation for main pipes where needed is not included. - The freight costs seem not to be included in the quote. Queries & remarks: • Clarification is needed on the cost of the additional required civil works and the freight costs	Strong points: ✓ The design looks good and is very similar/ the same with the current 153 ha SDI at KASCOL. ✓ Similar pumps, filtration and fertigation included. ✓ Same drip line with 0.9 lph and an emitter spacing of 60cm. ✓ The max application capacity per day is 8mm/day and therefore higher than the requested 6.8 ha. This offers potential advantages in extreme weather situations (very low rain fall, very hot weather). ✓ Very detailed BOQ/quotation. Weak points: - Not clear how flexible the system is in terms of flow and pressure control when only few fields require irrigation. - Doubtful if hydraulics are designed to have easy operation when only selected fields require irrigation (due to e.g. soil differences, planting difference, crop stage). Queries & remarks: • Installation + freight costs are 408,000 USD. Does this include all installation works, i.e. including all labour or not? This will be an important point to clarify.

Explanatory documents	▪ Very extensive documentation with explanations of the system. Also includes guidance how to operate the system. ▪ Netafim has demonstrated good knowledge and should be able to assist KASCOL in successful operation. It will be important to discuss details on how exactly this would take place. e.g. remote or on location etc. This is not described in the documents. ▪ Supplier to provide clear planning with time indication for different project stages, including the technical support offered.	▪ Detailed explanatory documents were not included.	▪ The explanatory documents are complete and especially the example of the project done in Malawi for Salima Sugar offers a good impression with a lot of photos of the different steps of the installation. ▪ The level of detail of the pump house and fertigation is also OK. ▪ A list is included with the project team, residing in Zambia: this can be considered as a pre. ▪ The documentation that was added concerning the SDI project in Malawi offers a good impression of what to expect. It also seems they have a capable team based in Zambia that will be in the lead of the project which can be considered as a pre. ▪ Kothari is a smaller irrigation company compared with the other parties.	▪ The documentation is extensive and shows the global experience on large scale irrigation projects. ▪ It also offers examples of after sales service and indicates that Rivulis has long term relationships with its customers ▪ Of all the items of the design, product info and pictures are included which gives a clear view on how the system would look like. ▪ The document presents a turn-key project. Installation supervision, training on how to operate and maintain the system are included. Rivulis also offers a 1 year free, satellite based irrigation advise, which would be useful for exact monitoring and water application advise.	▪ The explanatory documents concerning the pumphouse, fertigation and filtration station are clear. ▪ The explanation concerning the other parts of the design are limited. ▪ General information is shared about maintenance of the system.
Experience	Netafim will have adequate experience to assist KASCOL with the successful installation and operation of the system	JAIN has a lot of experience in e.g. India. Not clear of known how their experience is in Africa.	Saro has experience in irrigation projects and its installation. Malawi is the closest country where a similar system was installed.	Rivulis has extensive experience in large-scale irrigation projects globally. With Holland Greentech as a local distributor, they also have a strong local presence in Zambia	Since Metzer already installed the current system at KASCOL, Metzer is expected to have strong localized knowledge and the experience to also install this expansion.
Overall impression	Good design, good documentation and a quote that falls within the same range with its competitors. However, other options are expected to be easier in operation.	Potentially a good option, However the level of detail of the supporting documents is insufficient to assess this. Key-features such as fertigation are not worked out in sufficient detail. The quotation is also hard to interpret and installation and freight costs seem to be high.	Saro delivered a good offer in terms of design and price (lowest cost offer). They used the example in Malawi to showcase what they envision for KASCOL. There are a few question marks about the flexibility of the design and the use of only one pump(?). More info is required for automation/distant control part, flexibility of the system.	Rivulis presented a complete design with strong solution for fertigation, remote control of valves, flexibility and flushing manifolds. Info is still required in terms of freight costs and installation planning.	Good design, very similar to the current SDI design KASCOL. However, the current design is not very flexible, which limits the operation. Fertigation option is also basic.

Review conducted by team of Consultants Aquaquest Ltd.

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