EAS and Sugar Corporation Jointly Held Workshop on Biorefinery Development Roadmap

In collaboration with Sugar Corporation, the Ethiopian Academy of Sciences organized a one day workshop on “Biorefinery Development Roadmap” on Monday, July 10, 2017 from 3:00AM up to 5:00PM at Ghion Hotel Blue Nile auditorium. Vice presidents of various universities, lecturers, government officials, EAS fellows and researchers attended the workshop.

In his welcoming address, Professor Masresha Fetene, the Executive Director of EAS, expressed his gratitude to the presenters for their tireless work and contribution and to the audiences for making it to the place from distant locations. Further, Professor Masresha also introduced the program to the participants.

Dr. Kassu Ylala, member of the EAS, opened the event, in his opening speech, Dr. Kassu expressed Government’s priority to the Biorefinery Development Roadmap informing the participant the roadmap was first initiated by the Prime Minister. As a result, Dr. Kassu noted, the government has established National Biotechnology Institute reckoning the use of biorefinery is indispensable to the economy, recent researches reveal that more than 50 products can be developed from sugar byproducts, which is huge plus for the agriculture and the industry sectors. Universities have a responsibility to produce trained manpower for researches and biorefinery projects head of the time.

Following Professor Masresha’s welcoming address and Dr. Kassu’s opening speech; three research results were presented to the participant.

The first presentation was by Professor Belay Weldeyes. In his presentation, Professor Belay introduced the objectives and stressed the Government’s plan to raise Ethiopia to the level of meddle income countries within ten years; and indicated that reaching that goal it is apparent and consequently the country needs more products especially chemical products, and hence, focusing on biorefinery is noteworthy. Professor Belay also defined what Biorefinery is and how sugar refinery works using bagasse.

According to the presentation, Refinery is a process of using raw materials or byproducts to produce lucrative products. In the case of sugar companies the input materials could be bagasse or molasses, and this will be turned into energy products like electricity and ethanol or other products like, papers, tables, chairs, plastics for irrigation and medicine.

According to Professor Belay, biorefinery is a plus for the socio-economic development, including, green economy, industrial economy and agro- processing, irrigation, construction, biochemical and packaging. Professor Belay also expressed the possibility of using pure sugar for ethanol and other expensive chemical products.
Finally, he underlined that, by coming up with many products within the next few years we can create green ecology which is sustainable for the future generation.

The next speaker, Dr. Engineer Abubeker Yelma, presented his part, which covered the content of the roadmap including experiences of Ethiopia and foreign countries and market value of biorefinery products. Explaining the advantage we get from molasses, Dr. abubeker said that one can get lot of chemicals that can be used by food and garment factories. In addition, the better use of molasses can bring foreign currency and foreign currency expenses. According to him, there are four sugar factories under operation, out of which only two factories; namely, Methera and Fincha Sugar Factories produce ethanol. Though Ethiopia recently started to export ethanol, it is in a very little amount. However, considering the ongoing expansion of sugar factories in Ethiopia, it is expected to produce molasses 10% larger than what is produced now, hence, it is imperative that we enhance our efforts.

Experiences of other countries were also presented. It was indicated that, in Brazil 50% of the cars are being driven by ethanol. They offer specific courses given to students by three major Universities. Likewise, courses are being given in industrial fermentation in Diploma level in India. Belgium was also mentioned as a good example of using and making biorefinery products.

Dr. Engineer Abubeker, also presented the major challenge of the industries witnessed so far, inadequacy of enough training form TEVT collages up to universities, lack of adequate research laboratories, shortfall of elements of products that are useful for producing biorefinery products, defects found in sugar factories’ machinery leading to low quality production inputs for biorefinery products, were presented as a major challenges.

The last presentation of the workshop was made by Dr. Zebene Kifle. In his articulation of bioethanol and related products, Dr. Zebene affirmed that Ethiopia produces ethanol only from molasses but in a near future, it is intended to produce ethanol from both molasses and bagasse.

Dr. Zebene also highlighted related product around ethanol. Some of the products are pipelines, food packaging materials, oil cover plastics, roof, floor and spray. Products that can be used for refractory industry, medicine, and perfume can be obtained From ethane acetate. However, Ethiopia imports almost all of the chemicals items spending more than eight hundred fifty thousand dollars per annum. Finally, Dr. Zebene noted, establishment of an industrial park in Hawassa as a good example to strengthen technology-industry linkage so as to elevate this industry to the next level.

During the discussion session in the afternoon, questions and comments were entertained. Trained human resource need, university industry linkage, the time line for accomplishing the roadmap, the probability of producing ethanol apart from using molasses and bagasse, the involvement of private investors, externship and internship problems were some of the concerns raised by the participants.
The study team and Professor Massresha replied for some of the questions emphasizing the fact that the Ethiopian Academy of Sciences made endeavor by bringing together different scientists to conduct studies for the government on national priority issues and one of these is the study on sugar byproducts. It was also pointed out that the workshop was the third of its kind and the froth is scheduled to be held soon. Furthermore, the academy’s aim to address the need for central cluster laboratories that embraces universities and the linkage between universities and industries were expressed.

Finally, the workshop was concluded with by closing remarks by Dr. Kassu articulating the need to bring fast truck developmental change with strong sense of urgency and this has to be achieved by an inner drive. For example, one of the mechanisms that can bring agricultural surplus is biotechnology not traditional research with lingering outcomes. Thus, in terms of overseas experience, Dr. Kassu asserted that, science and technology of the advanced nations ought to be practiced in Ethiopia considering our local context, science and engineering that works in USA and Germany works also in Ethiopia. Hence, he underlined that our roadmap has to take advantage of the late comer technological advancement of the developed countries.

Taking into account that Ethiopia has biomass more than that of Europe, and hence, bio-economy is very indispensable to Ethiopia. According to Dr. Kassu, there are 34 countries in the world that have made bio-economy their integral policy and Ethiopia will join them soon. In replay to the question of skilled manpower and time schedule of the roadmap, Dr. Kassu replied that, at the end of GTP2, all the preparations will be completed and the current roadmap exertion is expected to be realized at the end of GTP3 but the bigger job of creating pervasive bio-economy needs to be passed from generation to generation.