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| --- | --- | --- | --- | --- |
| * Small/individual projects (valorization of residues and central collection of coffee/cocoa, for example Belen de Umbria) * Consciousness about coffee pulp/utilization of pulp on small scale plots * Traditional sectors/traditional mindset * Individual production and processing * No contracts/verbal agreements   Challenges:   * Finding workforce * Quantify available biomass * Expensive | * Integration of associations of the same sector | * Integration of associations of different sectors, that together manage the collection and sale of by-products | * Associations as central collection point + logistics (managed by association of associations) * Combination of different types of biomass available * Flexible contracts | **Production and collection of biomass** |
| * Does not exist on a big scale * There are small scale initiatives: biogas (this generates trust) * TRL 4-5 (Colombia) | * Pilot project on a location that is already more advanced (for example Belen de Umbria, Apia, Santuario) * TRL 5-6 * Utilize refineries (fossil) that already exist   Challenges:   * Investments | * More pilot projects in regions that are less advanced (for example zones ZOMAC) * Evaluation of the pilot project * TRL 7-8 | * Combination of central (Pereira) and decentralized (1 per department) facilities * Different products:   + Biogas   + Hidrogen   + Biofuel   + Biochar * Different process:   + Biochemical   + Fischer * Circular economy: products and benefits stay in the region * Ownership: private, with involvement of associations and federation * TRL 9 * Port: Buenaventura | **Biorefinery** |
| * Biodiesel mandate | * Needed: political will 🡪 regional and national * Implementation of the agrarian reform of the new government * Investments in roads * Regional integration/collaboration | * Regional integration and collaboration | * Regional integration and collaboration | **Trade and policies** |
|  | * Demonstration 🡪 generates trust * Successful examples | * Demand for larger scale/more biorefineries * Demonstration/visibility | * Development of industry and innovation * Energy generation in rural areas * Circular economy * Employment opportunities (focus on youth) * Reduce carbon footprint * SDGs: 7, 9, 13, 17, 12, 1, 15, 8 | **Impact** |
| * Associations:   + Generates trust for small scale producers   + Only 30-40% of members actively involved in associations (individualism)   + Lack of capacity: own economic resources/economic autonomy * Youth and children:   + Need to be involved, they are the ones playing important roles in 20 years (different education and formation than their parents) * Needed:   + Education | * Consolidation of associations:   + Role for federation, NGOs and Carder   + Example: Risaralda 🡪 many associations there, improve communication between them * Capacity building of associations:   + Focus on financial autonomy (for example by SENA, make use of existing institutions) * Strengthen role of intermediaries + make them aware of their role (plantains, coffee, cacao) * Involve youth + children in every step * Involvement of women * Digital transformation: create virtual platforms * Research needed:   + Feasibility studies   + Economic viability * Learn from international examples * Map out institutions |  | * Strengthened and united associations * Associations are economically autonomous * Youth and children of today important role in the institutions * Change of way of thinking | **Roles y responsibilities** |

Main conclusions

* There are already projects and initiatives, but on a small scale and individual level
* From individualism towards more collective production and processing. What is needed for that? Trust 🡪 Important role of associations, to provide that trust + play a role as central collection point + logistics planning. What do they need to play that role? 🡪 more capacity, economic capacity (be less dependend on (foreign) project money, but be economically autonomous (capacity building, financial trainings), infrastructure