

## BAB V

### KESIMPULAN

Penelitian ini telah memaparkan bagaimana kerjasama yang dijalin oleh FAO-IAEA dalam bidang pemanfaatan teknologi nuklir di sektor agrikultur khususnya terhadap komoditi tanaman pangan dengan studi kasus di Benin, Sierra Leone, Vietnam, dan Indonesia dilakukan untuk mengupayakan perwujudan *food security* melalui komoditas pangan di masing-masing negara. Ketahanan pangan adalah hak setiap individu di dunia untuk terbebas dari ancaman rasa lapar, ketahanan pangan merupakan *global public goods* yaitu suatu hal yang tanpa terkecuali dapat dinikmati dan dibutuhkan oleh siapa saja tanpa adanya kekhawatiran akan mengurangi porsi ketersediaan individu lainnya.

Guna mewujudkan ketahanan pangan sebagai *global public goods* maka dibutuhkan aksi kolektif yang melibatkan organisasi internasional dan negara, dalam hal ini FAO-IAEA dan empat negara studi kasus di dalam sebuah kerjasama internasional. Faktor yang mendorong terjalinnya kerjasama FAO dan ke-empat negara studi kasus dilandasi dengan keinginan dan tujuan yang sama yaitu mewujudkan pengupayaan ketahanan pangan di negara sebagai kontribusi terhadap ketahanan pangan di dunia. Kerjasama pemanfaatan teknologi nuklir di bidang agrikultur memberikan keuntungan kepada partisipannya, tidak hanya dalam bentuk materil tetapi juga terjalinnya relasi dan pengetahuan akan teknologi yang bermanfaat guna meningkatkan produktivitas sumber pangan pokok di setiap negara, keuntungan kerjasama ini dapat diperoleh dari bentuk kerjasama FAO-

IAEA di masing-masing negara, FAO-IAEA sebagai institusi internasional yang menaungi menjalankan fungsi operasional dengan memberikan bentuk kerjasama berupa anggaran untuk kerjasama teknikal yang melibatkan penyediaan fasilitas dan alat-alat penelitian, uji coba laboratorium, penyediaan ahli-ahli, pelatihan teknis, riset dan pengembangan, serta uji coba lapangan.

Pentingnya FAO dan IAEA hadir di Benin, Sierra Leone, Vietnam, dan Indonesia adalah sebagai institusi internasional yang mengupayakan ketahanan pangan di setiap negara sebagai kontribusi terhadap perwujudan ketahanan pangan di dunia. FAO-IAEA adalah organisasi internasional yang memiliki kapasitas, daya, dan kemampuan untuk menaungi kerjasama ini dikarenakan memiliki keahlian di bidangnya yaitu pangan dan pemanfaatan teknologi nuklir. Penggunaan energi nuklir tidak dapat disalahgunakan dan diharuskan untuk didampingi oleh badan yang mengasi dan menaungi untuk menjamin jalannya kerjasama dapat berlangsung secara kondusif dan aman guna tercapainya tujuan dan komitmen bersama.

Penelitian ini memiliki temuan berupa hasil dari kerjasama yang dilakukan FAO dan IAEA dalam pemanfaatan teknologi nuklir di bidang pertanian di masing-masing negara atau disebut dengan *Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture*, hasil dari kerjasama menunjukkan adanya potensi yang besar untuk meningkatkan produktivitas pertanian terutama untuk komoditi pangan di setiap negara guna mengupayakan terwujudnya ketahanan pangan atau *food security* di setiap negara. Pertama, kerjasama ini telah berhasil menciptakan varietas atau bibit jenis baru dari

komoditas pangan di tiga negara yaitu Sierra Leone, Vietnam dan Indonesia.

Kedua, kerjasama FAO-IAEA dalam pemanfaatan teknologi nuklir meningkatkan produktivitas pertanian dari bibit hasil radiasi yang memiliki karakteristik seperti; hasil panen melimpah; rasa yang lebih enak; memiliki umur panen yang lebih pendek; dan memiliki resiko lebih rendah terhadap kegagalan panen akibat pengaruh lingkungan atau cuaca. Produktivitas ini memberikan peningkatan terhadap ketersediaan komoditi pokok di masing-masing negara.

Ketiga, kerjasama FAO-IAEA memberikan hasil dalam peningkatan gizi dan mutu yang terdapat di dalam komoditi pangan di masing-masing negara. Keempat konsumsi pangan masyarakat terhadap komoditi utama yang meningkat dan kelima adalah kerjasama FAO dan IAEA dapat berkontribusi terhadap usaha negara dalam mengupayakan ketahanan pangan dalam masa-masa sulit.

Dalam pengaplikasian hasil kerjasama ini ditemukan apa saja tantangan-tantangan yang membuat hasil dari implementasi kerjasama menjadi bervariasi, tantangan-tantangan tersebut diantaranya adalah; adanya intervensi dari pasar asing; fasilitas dan teknologi pertanian yang belum memadai; anggaran pemerintah dalam aplikasi hasil kerjasama; permodalan golongan petani yang belum kuat; sistem pertanian dan pendistribusian hasil panen yang belum terorganisir; sosialisasi keamanan penggunaan teknologi nuklir dalam penyinaran bibit yang masih minim; dan kebijakan negara dan sinergi pemerintah dan badan terkait dalam pengaplikasian hasil kerjasama. Perwujudan ketahanan pangan di setiap negara memiliki dinamika politik dan komersilnya masing-masing.

Dalam konsep kerjasama internasional dikatakan bahwa hasil dari kerjasama memiliki variasi, variasi tersebut bukanlah hal utama dari tujuan dibangunnya kerjasama internasional, yang terpenting adalah usaha negara dalam berkontribusi terhadap tujuan tersebut. Hal yang menjadikan kerjasama internasional dapat terlaksana dan berhasil adalah karena didorong oleh tujuan dan kepentingan yang sama. Dalam konteks ini adalah upaya perwujudan ketahanan pangan merupakan landasan dari terjalinnya kerjasama ini.

Di dalam pandangan teori Liberal Institusional dikatakan bahwa kerjasama institusi internasional dengan negara utamanya adalah membangun relasi yang baik dan didasari dengan mewujudkan kepentingan bersama, keuntungan yang didapatkan juga tidak semata-mata berupa pundi-pundi uang, tetapi juga bagaimana negara dan institusi internasional dapat saling bahu membahu menjalin kerjasama dan relasi yang baik hingga kemudian hari. FAO dan IAEA sebagai institusi internasional atau memiliki rejim internasional yang menaungi kerjasama dengan menetapkan standar dan aturan dalam penjalanannya dengan tujuan untuk menciptakan iklim kerjasama yang kooperatif, aman, dan sesuai dengan standar yang berlaku, sehingga kerjasama dalam penggunaan energi nuklir ini dapat berjalan secara aman dan kondusif.

FAO dan IAEA memberikan hak penuh bagi setiap negara untuk mengaplikasikan hasil kerjasama sesuai dengan kebijakan dan kapasitas negara dalam menjalankan, dalam pandangan teori liberal institusional dijelaskan bagaimana institusi internasional yang bekerjasama dengan negara dapat menghormati kebijakan dan kedaulatan negara.

Secara keseluruhan dari paparan dan analisis dari penelitian ini dapat disimpulkan bahwa kerjasama FAO-IAEA dalam pemanfaatan teknologi nuklir di bidang pertanian untuk mengupayakan perwujudan *food security* di dua kawasan yaitu Afrika Barat (Benin dan Sierra Leone) dan Asia Tenggara (Vietnam dan Indonesia) dapat dikatakan berhasil dengan pencapaian yang bervariasi berdasarkan tantangan dan kebijakan pemerintah dari masing-masing negara. Dari kerjasama ini membuktikan bahwa penggunaan teknologi nuklir untuk tanaman pangan memiliki potensi besar dalam mengupayakan ketahanan pangan terutama dari sisi produktivitas dan merupakan salah satu cara yang efektif untuk mengurangi kerugian para petani di masing-masing negara dari kegagalan panen.

Dari kerjasama ini juga membuktikan bahwa kerjasama yang dinaungi oleh organisasi internasional seperti FAO-IAEA yang memiliki kredibilitas dan kapasitas dalam bidangnya dapat membuat iklim kerjasama dengan negara terkait menjadi kooperatif dan kondusif, bahwa kerjasama dapat dijalankan atas dasar ingin mewujudkan kepentingan bersama dan memajukan kesejahteraan bangsa, bukan hanya untuk memperoleh keuntungan semata tetapi juga untuk membangun relasi yang baik dikemudian hari.

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